

Sainfoin: An incredible fodder plant that could be key to sustainable agriculture

A lot is expected of farmers today. Everyone has an opinion on how our food should be grown and produced. What we eat and how it gets to our tables are emotive and often contentious topics. Farmers come under intense public scrutiny yet many – especially smaller farmers – struggle to make ends meet. From the ongoing arguments about the size of the national herd to rocketing fertiliser, feed and fuel costs, the way forward can seem fraught and uncertain.

Many Irish farmers are tied to a system that promotes intensive practices, specialising in dairy or beef production based on primarily ryegrass pasture. They are encouraged to produce higher yields and increase herd numbers while also asked to support biodiversity and mitigate the polluting impacts of agricultural run offs on the landscape. These competing priorities are not easy to manage.

Deirdre O'Mahony and The PLOT 1 at VISUAL, Carlow

Deirdre O'Mahony is a visual artist whose work looks at these issues. She is interested in sustainable agriculture and food systems and how farmers and rural communities are navigating this terrain. Her ongoing project The Sustainment Experiments is a form of public inquiry that considers what actions can be taken concerning farming and food consumption in the context of the ecological and climate crisis. As part of Sustainment Experiments, Deirdre has been working with VISUAL gallery in Carlow on an art and public engagement project called The PLOT 1. This involves the planting of a very interesting animal fodder crop called sainfoin in the grounds of VISUAL. It is still growing on site.

Sainfoin has a long heritage and was widely used in Europe prior to the uptake of ryegrass. It has an incredible array of positive properties: fixing nitrogen in the soil, reducing methane emissions and parasites, good in drought conditions and excellent for pollinators. As part of PLOT, Deirdre organised an event at VISUAL on 15 June with speakers talking about sainfoin as well as sustainable approaches to farming more broadly. These approaches may offer solutions to challenges facing farmers today.

The cost of fertiliser

The dominant Irish farming method of primarily ryegrass-based pasture is heavily reliant on fertiliser inputs. While productive, it is a vulnerable model. A pressing concern to farmers is the rising price of these fertiliser inputs, particularly nitrogen. Prices have soared globally with Irish farmers amongst the worst affected, paying up to €1000 a tonne for nitrogen in 2022. This alarming financial increase is leading many farmers to rethink reliance on these inputs.

Sustainability – both ecologically and practically - is another consideration. There are 'boundaries' that the planet cannot surpass while still sustaining life. Some artificial fertiliser inputs are teetering close to full global exploitation: 'Peak phosphorus' has been flagged many times over the past years. Nitrogen, on the other hand, is in almost unlimited supply in the atmosphere but its application on the land means it leeches into water systems and other environments that are unable to withstand it. As Professor Nick Holden from University College Dublin puts it, "the Earth's systems cannot buffer these amounts."

Regenerative farming and soil health

With all these concerns, side effects and unintended consequences, it's understandable that farmers can feel overwhelmed or patronised. Yet some are experimenting with alternative approaches. Regenerative farming is one of these proposed solutions: shifting from the current "linear" approach

which will exhaust the Earth's biological resources to a "circular" one which holistically regenerates them.

Central to the ethos of regenerative farming is soil health. Our existence is dependent on the soil as habitat for microbial communities such as bacteria, fungi and other organisms, all of which are key to the cycling of key nutrients including carbon, nitrogen, and phosphorus within ecosystems. Plants like sainfoin offer natural ways to facilitate this process.

Sainfoin

Paul Totterdell from Cotswold Seeds (UK) spoke first and is an enthusiastic proponent of sainfoin's many benefits for soil, environment and animal health. Sainfoin means "healthy hay" in French. It is found all over the world in common and giant varieties. It has a long history of usage in agriculture and is sometimes called "the forgotten forage". As a perennial, sainfoin will produce for five years or more without re-planting or disturbing soil ecology. It works well in a diverse sward mixture or as a pure stand.

Paul explained that sainfoin can require a little more care than more commercially available forages, it can be slow to establish and not suited to acidic or wet soil. However, its benefits are many for both soil and animals. As part of the legume family which includes red and white clover, vetch, peas and beans, it has the capacity to fix nitrogen naturally in the soil for use by subsequent crops.

Sainfoin also offers benefits for animal husbandry due to the presence of condensed tannins which can have an anti-parasitic effect, aiding disease immunity enhancement and reducing reliance on worming medication. It's great for grazing animals; cows love it and it's known as rocket fuel for racehorses.

Regenerative Farming

Stuart Meikle from The Institute of Regenerative Agriculture and Horticulture then spoke about the bigger picture and regenerative agriculture, which is something of a buzzword in recent years, combining traditional and older knowledge with current scientific insights as a way to combat climate change and soil degradation. Stuart is an agricultural management and policy specialist, an economist, a writer and an advisor. He has a huge amount of international experience and is interested in how these solutions can work for the everyday rural farmer.

Regenerative farming seeks to work with and mimic natural systems to improve the land's resilience, bringing benefits to the farmer but also the environment. Stuart defines it as being "based on continuously regenerating soil fertility by using nature's evolved mechanisms to replace nutrients lost to harvesting." Some of the principles behind regenerative farming include minimising soil disturbance, as in the "no till" method, using cover crops in the gaps between cash crops, maximising crop diversity, and integrating livestock into land management.

Role of animals

Of particular interest in the discussion was the role of cattle and other ruminants. The environment versus agriculture debate is often polarised in relation to livestock and understandable concerns over emissions. Stuart advocates an approach attuned to the local landscapes and tradition, where livestock animals can form part of a holistic system where their grazing patterns contribute to soil health, thriving crops and carbon sequestration.

A central tenet of regenerative agriculture is less disturbance of the soil, for which permanent and longer-term perennial swards including deep rooting herbal leys are recommended. These “multi-species” or “diverse” swards pull nutrients from deep in the soil and atmosphere, thus requiring less nitrogen input. Sainfoin has one of the deepest roots of all forage plants and can bring up minerals from deep in the ground.

Pasture animals graze on these swards and excrete the processed plant nutrients for use in the topsoil, accelerating the processing, recycling and movement of nutrients around pastures and facilitating abundant plant growth. Working with livestock in this way reduces or eliminates the need for phosphate fertilisers, but as Stuart says, “they must be fertility builders not consumers”, ie. they must be pasture not grain fed.

Future of farming in Ireland

So what does the future look like? Stuart believes that the optimal ecological agricultural system in Ireland should be based around woodland pasture ecosystems. He proposed that the future must involve livestock rather than purely arable cropping tillage systems which he sees as unsustainable due to their reliance on inputs, particularly for cereal crops. Key to this future is soil biodiversity. From soil, and soil as habitat, Stuart believes, everything else will follow. Livestock and legumes like sainfoin will be key. We also heard from by regenerative Zwartbles sheep farmer Suzanna Crampton who spoke about “farming with nature” and species interdependency, in particular dung beetles and their role in the cycle of nutrients.

Ireland is a country with a huge pastoral and animal husbandry tradition and expertise and strong cultural and reputational associations. The use of nitrogen to grow grass in the last forty of fifty years has made this unsustainable and vulnerable to global forces. The challenge facing farmers is how to grow forage and herbal leys without these inputs and make this transition. Changing entrenched systems is difficult but a community is growing. The Regenerative Farming Ireland Facebook group currently has over 3000 members.

Persisting with sainfoin: a metaphor

Deirdre’s PLOT of sainfoin at VISUAL initially struggled to take when sown, but has persisted and is now thriving. She offered the sainfoin’s struggle as an apt metaphor for the challenges ahead in terms of making Irish food production sustainable and attuned to planetary boundaries.

Deirdre stated that the scale of the global agricultural, food and environment challenge require us to step back from our specialisms and collectively figure out how human and non-human life can continue to co-exist on the planet. Key to this will be integrating the tacit knowledge of the farmer with scientific and specialist research knowledge. Sainfoin may be the ancient plant that links our past with a sustainable food future.