



“There is nothing more cost-effective than the free issue of nature.”

# The unaccounted value of nature

## Nature Means Business

There's increasing weight being thrown behind a more nature-friendly approach to farming and a body of evidence is building that this also makes sound business sense. *CPM* tuned into the inaugural Nature Friendly Farming Network conference to find out more.

By Lucy de la Pasture

Global leaders at the recent COP26 summit in Glasgow were keen to place nature-based solutions at the centre of a strategy for tackling climate change. The direction of travel for agriculture is becoming clear and the Nature Friendly Farming Network (NFFN), founded by *CPM* columnist Martin Lines, put forward a robust business case for moving away from the current agricultural model where productivity is considered to be king.

Sir Dieter Helm, professor of economic policy at the University of Oxford and former independent chair of the Natural Capital Committee, which provides advice to government on the sustainable use of natural capital, opened the conference. He believes natural capital is an asset that

hasn't been fully appreciated by agricultural businesses in the past.

“Never have we needed nature-friendly farming as much as we do now,” said Dieter. “The great challenges of our time are the protection of natural capital and biodiversity while addressing climate change. This can't be done without a radical rethink on how we use the land and at the core of that, how we do our farming.”

Dieter believes that a global perspective helps to give a better context on what has to be achieved by each and every farm business.

### Reducing emissions

“Globally we've been adding 2ppm to the concentration of CO<sub>2</sub> to the atmosphere for over 30 years. That's terrible because it's the only number that matters. Even last year, in which we had COVID lockdowns, we still added another 2ppm. We need to rethink radically how we can reduce our carbon consumption and carbon production and do the two things that matter — to reduce our emissions and sequester carbon.”

In the UK, carbon production targets are to reduce emissions by 78% by 2035 and eliminate carbon within less than 29 years. “That's huge on any scale,” he added.

“There's no sector more important than agriculture because of its potential to sequester carbon. It may be only 0.04% of GDP but it has a level of measured emissions of 11%, so it's relatively the

largest polluting sector in climate change terms in the UK,” said Dieter.

“That figure doesn't properly measure the carbon in the soil and peat losses. Soil is an immense part of the carbon story as it contains three-four times the amount of carbon than is in the atmosphere. Without substantive change to agriculture, we aren't going to crack our contribution to dealing with climate change.

“We have to take a holistic view of nature as a whole, understand where we are and work out what we need to do to hold the line and get all the tremendous benefits that come from investing in natural capital.”

So how do we do this? A good place to start is with a baseline using a natural capital asset-based approach, he said. “It's not just about ecosystem services, it's



*There's no sector more important than agriculture because of its potential to sequester carbon, said Dieter Helm.*

about the assets which are the base from which those services are developed — it's a balance sheet.

"The next thing to be done is to work out a capital maintenance. Land is an asset in perpetuity, it can't be properly depreciated. We have to spend what's necessary to at least maintain it intact."

What are the opportunities to make things better, to have better natural capital so the next generation inherit a better climate with more biodiversity?

"If we want to be nature-friendly, and frankly we can't afford not to be, then we have to sort out which opportunities offer the greatest natural capital bucks for the cost of doing them and turn to the support regimes under ELMs and SFI to prop those up.

"These become asset sheet enhancements, they go on to the balance sheet and provide a measure of how well our stewardship is adding to the asset base we have at the moment," explained Dieter.

"Within this framework the opportunities are legion — there's carbon offsets, genuine carbon sequestration, multi-benefits from agroforestry, water benefits, there are mental and physical health gains and

biodiversity increases, to name a few.

"Then there's the messy business of the money — who pays for what? It's my view that the polluter should pay. Agriculture is a really big polluter so we should have taxes on pesticides and fertilisers. There should be charges for forcing nitrate neutrality."

### Finding the sweet spot

"Nature-friendly farming is a huge opportunity and, what's more, it's sustainable. Going on like we are in agriculture isn't sustainable. If it's not sustainable then it will not be sustained. Ultimately there's only one way to go — sustainable, nature-friendly farming."

Over the past few generations, increasing productivity has been the sole focus in agriculture with the role of nature largely ignored. Farmer and business management consultant Chris Clark of Nethergill Associates has been gathering evidence which challenges this status quo.

"I've looked at 80+ farms over the past two years and there's a controversial but indisputable conclusion. When farming is at maximum profitability (before support), nature is at maximum value. There's a sweet spot where farming and nature coincide to their mutual benefit," he said.



*On the face of it, the concept of land sparing and sustainable intensification look like a climate change solution, but this isn't actually the case, explained Tim Benton.*

The concept is against the current perceived wisdom but is backed up by all the farms he has reviewed. "Not only do we have this evidence, but we know what we've found out is backed up by the laws of physics, mathematics and economics."

Chris went on to tackle the question of restoring nature by taking land out of production and rewilding. He doesn't see this as the answer.



"We have a managed landscape without ►



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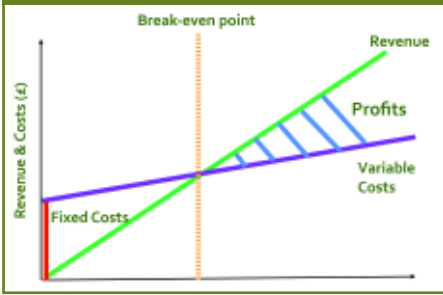


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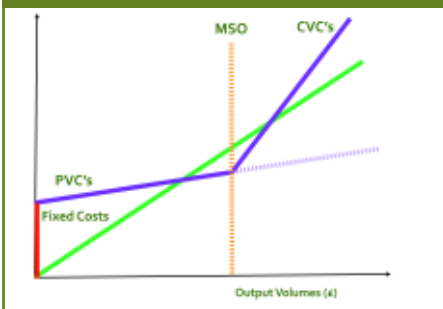
# Nature Means Business

## The traditional model



The traditional model says as you increase output, revenue increases – fixed costs remain static and where the variable costs meet revenue is the break-even point. Beyond the break-even point it's all profit.

## The new model



A new model suggests variable costs have to be subdivided into productive variable costs and corrective variable costs because of the concept of free issue.

► truly wild places. I'd define wild by having a trophic cascade, where there are top predators — we don't have that in the UK. We operate in a managed landscape which has been nudged along by farmers for 1500 years.

"Until 1914 there was an equilibrium between farming and nature. Since the two world wars, we've been asked to produce food at all costs, some would say at any cost."

Instead Chris suggested we should have a managed landscape which exists in equilibrium with nature, but that isn't without its challenges.

"It's not a stable position, technically it's

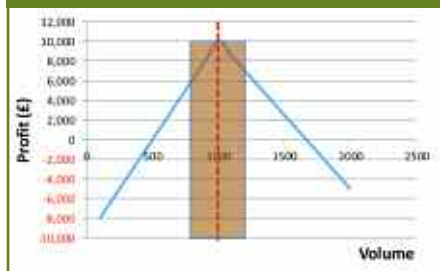
an unstable equilibrium in the sense that good husbandry — crop or livestock — is essential for its maintenance. But we've moved away from that balance to a position that's way out of kilter with our managed landscape and we have to get back to balance. When we get back to the sweet spot then we'll find farming is at its most profitable and nature is at its best."

Nature provides farm businesses with what Chris describes as 'free issue' — sunshine, rain, fertility etc. "There is no other industry that has this sort of advantage, this asset. It fundamentally changes how farms should be managed and how these assets should be accounted for — both on the profit and loss account and on the balance sheet. So it also affects how we manage our costs."

Traditionally variable costs are associated with driving volume. "As you increase output, revenue increases — fixed costs remain static and where the variable costs meet revenue is the break-even point. Beyond the break-even point it's all profit — or so we've been told — so farming has driven production to increase the amount of profit."

In other words, expansion beyond the break-even point delivers continuously

## Maximum Sustainable Output



At the point where PVCs incurred when working with nature, are then supplemented by CVCs, nature is at its best – this is the maximum sustainable output (MSO).

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growing profits. Maximising output volumes eases the burdens of fixed costs recovery, he explained

But is this really the win-win strategy we've been led to believe? "Unfortunately this model is at fundamental disagreement with farming realities. We've only just begun to understand this," said Chris.

He believes that variable costs have to be subdivided because of the concept of free issue. "Productive variable costs (PVCs) — contract labour, harvesting, seeds, fertility etc — are the ones associated with free issue, whereas corrective variable costs (CVCs) — artificial fertilisers, sprays etc — drive production and are substituting for nature," he explained.

"Most farms have driven production so that the break-even point (before support) is different. It's critical that we understand the position before support because subsidies are changing and farm businesses will be getting less.

"At the point where PVCs incurred when working with nature, are then supplemented by CVCs, nature is at its best — we've called that the maximum sustainable output (MSO). There is nothing more cost-effective than the free issue of nature."

The pattern of profits is different when PVCs and CVCs are separated compared with the standard model, he explained. "Profits are maximised at the MSO and break-even occurs earlier on the output scale than in the standard model. The MSO is a zone rather than a definitive point. It's like balancing a ball on top of the mountain — for instance having too few stock produces different stresses on nature than having too many stock."

Digging deeper into MSO, Chris highlighted that it represents the maximum profitability and margin (profit as a percentage of sales) and the maximum contribution from nature (free issue).

"If you are at MSO then nature is working with you to make your business more profitable and your business is working with nature to make it at its best. It's the point where the inherent natural capital delivers its maximum commercial benefit — the profit and loss account and the balance sheet come together.

"If you go above MSO then you incur additional costs substituting for nature — for example artificial fertiliser which brings additional stresses on soil fertility and biodiversity. If you go below MSO then the bounty of nature isn't being fully utilised,



*The UK landscape is a managed one which has been nudged along by farmers for 1500 years.*

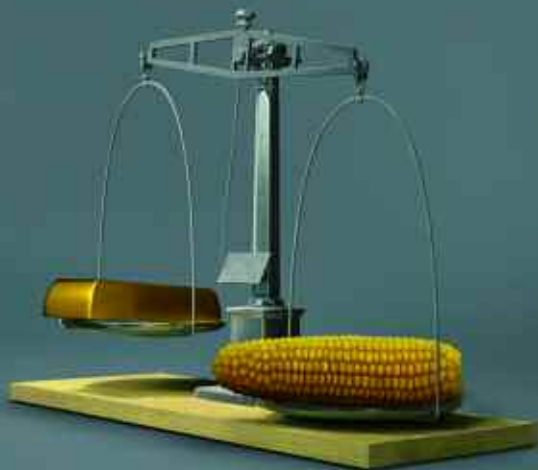
and it also brings different stresses on nature."

Currently most farming businesses are working beyond the MSO, he pointed out. "But by returning to the MSO, the benefits will include increases in biodiversity, improving soil fertility, improvements in animal health and increasing profitability.

"The inevitable decrease in farm outputs is very scary but can be offset by a new focus on business assets, treating natural capital as a marketable product and going the route of high-quality branded produce with a greater degree of added-value on the farm."

Chris summed up by stating that nature ►

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# Nature Means Business

► and farming are inextricably linked. “We have to promote this better balance between them, and this can only come when the evaluation of natural benefits can be quantified on an agreed level. “It’s a case of progressively reducing

CVCs to operate at MSO levels and aggressively reduce fixed costs. If previous CVCs have been high, then the MSO will be lower initially, but it will increase as the farm management changes and fertility increases.

“Treat nature as a stakeholder in a farm business — it will end up on your balance sheet — it provides free issue, helps define a better business approach and a better return on total assets, so it’s more profitable.” ■

## Why intensification isn’t the answer

Intensification has become deeply entrenched as the rationale for agriculture - nature has been sidelined, said Prof Tim Benton, research director at Chatham House.

“The drive comes from post war development, liberalisation of trade and the notion that producing cheap food is a public good. As cereal yield has increased, prices have come down in a linear way as production has intensified, whereas the number of calories available per capita on a global scale has increased.”

Tim pointed out that there are unintended consequences of this. “As the price of food is driven down through intensification it makes it economically rational to waste it and it’s also economically rational to increase our calorie intake to the point where it undermines our health. Food waste and obesity are accelerating so any yield increases we make don’t have a linear marginal impact — it makes the outcomes so much worse every time we increase agricultural intensity.”

The cheaper food paradigm ends in negative outcomes. “We drive intensification and liberalise trade and that increasingly is driving climate change. The latest estimate on a global scale is that our food systems are responsible for 35% of GhG emissions.”

Tim described the vicious circles that have resulted. “As we drive climate change, yields decline in some places leading to worries about global food security and further intensification. As intensification increases that leads to an increased carbon footprint (in some parts of the world) and that leads to further biodiversity loss, which in turn leads to yield decline. So agriculture tends to intensify further.

*Evidence for profitability from a less is more approach is growing as the demand for less and better grows – this isn’t through greenwashing but through genuinely nature-friendly farming.*



“As we drive climate change, land is planted with trees and this is changing where people are farming. This can shift agricultural production, disturbing the land in some parts of the world which further contributes to climate change.

“As food becomes cheaper and more available, we deplete the soils and this depletes yields and the reaction is to intensify further. Production becomes concentrated in fewer and fewer crops and commodities are grown in intensive systems in monocultures that contribute to biodiversity loss.”

Incredibly 75% of the world’s calories come from eight crops, he said. “It becomes economically rational to feed grain to livestock, people eat too much meat, and processed meat in particular, which undermines nutrition and dietary convergence.

“This intensification leads to a whole host of interlocking vicious circles. We’ve focused on highly productive agriculture and that has made the rest of the food system highly inefficient with 30-40% efficiency for calories and proteins. Health and environmental costs five-ten times more than agricultural GVA.”

While it’s true that maximum biodiversity occurs if land were left alone and maximum productivity is achieved under intensive systems, he explained, when farming in a nature-friendly way it’s somewhere between the two and traditionally considered the worst of both worlds.

This has led to so-called land sparing and sustainable intensification as a solution, where less productive land becomes land for biodiversity. “The problem is that it doesn’t work in the real world — there’s ‘spill over’ from the land that’s farmed intensively — it pollutes the atmosphere and creates climate change and undermines natural capital.

“The answer is to move to creating enough land to feed people — eating less but better — and rewarding farmers through the market to do that, reducing the pressure to spare land for nature. In this way nature friendly farming can produce enough to feed people, enough profit and it can allow a significant amount of biodiversity conservation in the natural capital.”

However, politically the predominant vision is that food systems are left to the market and shaped by global competition (free market capitalism). The cheaper food paradigm is very politically entrenched, Boris Johnson said on the



*There’s a sweet spot where farming and nature coincide to their mutual benefit, explained Chris Clark.*

day the National Food Strategy was produced: “We’re not going to tell people how to eat and we’re not going to let food prices rise.”

Tim added that managing demand is politically toxic and what’s more, the people talking about intensifying farming aren’t part of the elite that make the decisions. “We have a knowledge system and thought-leaders who are very technocratic in their approaches to solutions (eg Bill Gates, UKRI strategy, Royal Society) — the belief is we can have a business-as-usual lifestyle if we invest enough in finding a technical solution.

“But an intensification-first system will break the system and volatility is likely to increase beforehand, undermining cash flows and profitability. We need more regenerative approaches and systemic change. This may not come through the market but may come through a changing demand where people want to eat more healthily and worries about the climate as the crisis worsens.

“In the meantime, evidence for profitability from a less is more approach is growing as the demand for less and better grows — this isn’t through greenwashing but through genuinely nature-friendly farming.”

Tim concluded that we got the balance between farming and nature horribly wrong over the past 60-70 years by focusing only on productivity. “It rather proved Jevon’s paradox which states that productivity enhancing innovation leads to negative outcomes.”