

UK Land Use: Farming and Nature



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Planning for the future of Land Management: A philosophical framework

What is land management?

- Working with Nature for economic advantage and societal fulfilment

The five judgements required to ensure sustainable and economic land management:

1. Logic (The science of Reason)

- *Nature* is the primary source of all food, materials, beauty, energy, drugs, etc
- Its exploitation by Society is the foundation of human progress

2. Ethics (The morality of Society)

- *Nature* must be respected – when it is abused, it fails to deliver
- *Nature* must be allowed to recover after delivery
- *Nature* must be returned to a position of un-compromised sustainability after being exploited
- Subject to the 2nd Law of Thermodynamics: irrecoverable energy is lost in all cases of change

3. Aesthetics (The efficiency in Design)

- If left alone (for long enough) *Nature* always looks right
- If things don't look right, they aren't right – and they must be allowed to recover
- Subject to the 2nd Law of Thermodynamics: the recovery path will never return the original conditions
- Delivering results requires an appropriate, effective and efficient management structure
 - Hierarchies (human society) deliver power
 - Networks (Nature) create influence

4. Rhetoric (The messages of Persuasion)

- *Nature* must be the first **consideration** of Society
- Economics is the critical **determinant** in extracting benefits for Society from *Nature*
- Sustainability is the critical **obligation** for Society when drawing on the benefits provided by *Nature*

5. Politics (The art of Compromise)

- Being: How we extract what we want from Nature without destroying what we leave for the future
- Being: How we strike the right balance among the competing constituencies in Society for the benefits from Nature, in a fair and equitable way

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Change in Farming/Land Management

1. **Farming works within a *managed landscape* – a landscape that has been nudged along for 1,500 years in the quest for produce and productivity.**
 - Since 1914, the industry has been forced-along to deliver output at all-costs; or more accurately output at any-cost.
 - The managed landscape should occupy a position of equilibrium between Nature and commercial farming – a position, technically, of un-stable equilibrium in the sense that good husbandry, crop or livestock is essential for its maintenance.

2. **The whole context of farming changes fundamentally at the point when naturally-available resources are exhausted. At this point, the MSO¹ (*maximum sustainable output*):**
 - Nature makes its greatest commercial contribution to the economy.
 - Profits (in absolute terms) and profitability (as margins) are maximised.
 - The change to the landscape from one year to another is minimised – and as change promotes stress, so the stress on Nature will also be minimised.
 - The bio-diversity of the specific property is optimised – and this can be developed further as the landscape becomes more sustainable.

3. **If farming moves beyond MSO, it requires new resources to substitute for those that were naturally-available. These new resources come with a few significant problems:**
 - As food is a form of energy, the new resources must deliver the extra energy needed to produce additional volumes of food. This energy comes at a cost:
 - Firstly, more energy needs to be purchased than the amount that is delivered in the food product. [Reference: The 2nd law of thermodynamics]
 - Secondly, this energy has a real cost to the economy – in contrast to naturally-available resources (such as sunlight, rain, and wind which support the fertility of the soil and provide pasture for livestock) which come as “free-issue” resources by courtesy of the sun.
 - Thirdly, the cost per unit of these substitute resources is typically greater than the additional revenue per unit of the food product.
 - *Nature* has been in a state of continuous evolution since the formation of the planet. It is inevitable then, that any surviving plant has adapted to take the nutrients it needs from its natural environment. If a plant needs nitrogen, carbon, and oxygen it will have the ability to take what it requires from its natural habitat [Reference: Darwin – *The Origin of Species*]. Forcing more on plant life in the quest for productivity (yields) is a pathway to a *dead-end*:
 - By analogy to the world of economics, it is *inflationary*. It can only make plants lazy and less vigorous – also it will require more and more support in time just to perform at the same level.

¹ MSO is defined as the volume of output commensurate with the point at which the natural fertility or grass runs out. Beyond this point substitutes will be needed and these will be not only more expensive than natural fertility or grass but they will push yields and stocking rates beyond the point that can be maintained entirely (and therefore, sustainably) by *Nature*

- When forcing plant growth, it is easy to over-supply the need and surpluses will be refused. These surpluses, for example, are the source of run-off problems and the adulteration of water courses.
- 4. If farming moves below MSO a new family of problems emerge, and these can be equally as damaging as forcing production:**
- If a farming property was “re-wilded” it would:
 - Reduce its’ commercial value.
 - Reject *Nature*, with its free-issue resources, as a component of a modern economy.
 - Find a new point of equilibrium with *Nature*, but this point would not be some past idyll – it would just be different and incapable of prediction. [Reference: The 3rd law of thermodynamics]
 - Promote rapid change, through lack of husbandry, and this will put more stress on the landscape than would responsible and effective farming.
- 5. The future for farming successfully in Britain will pivot on:**
- Moving activities to the MSO point.
 - This will be achieved through progressive reductions in CVCs² (*corrective variable costs*).
 - Moving the MSO point forward through better farm management practices relating to the naturally-available resources.
 - As the MSO point moves onward so the general bio-diversity of the property improves.
 - Accepting that it is likely that it will be necessary to aggregate farms into larger units as opportunities arise.
 - The biggest problem in farm profitability is the level of fixed costs in relation to revenues. The under-utilisation of expensive plant and equipment is a major concern in this regard.
 - This is the true impact of the economies-of-scale effect – it should be about unit costs not absolute volumes.
 - Turning produce into branded-goods from its current status as a commodity.
 - This will be achieved through a quest to add-value to produce. The trap to avoid is one of adding-cost in the mistaken belief that value has been added – this is the trap posed by CVCs.
 - This path will ultimately force changes to the distribution channels to the consumer. Farming must pursue a greater share of retail prices.
 - Good crop husbandry and un-compromised standards of animal welfare. These are axiomatic.

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² CVCs are defined as: Inputs that attempt to substitute for *Nature*: e.g. livestock feed, fertiliser, sprays

Farming, Rewilding and Policy

1. The Case for farming with *Nature* and not substituting for it

- Farms should operate at the MSO (maximum sustainable output) level.
 - The adulteration of *Nature* is avoided (No artificial fertilisers, sprays etc)
 - *Nature* is at a point where the economic impact of its bounty is maximised
 - CVCs are detrimental to bio-diversity and as CVCs¹ are eliminated at MSO, then bio-diversity at MSO will have improved and will be at a level exactly required to support MSO.
 - Farm profitability is maximised
 - Farming, in general, makes its greatest contribution to the national economy
 - Farming will evolve to offer new options to be carbon neutral
- Evidence of working closer to MSO already shows that:
 - Profitability improves
 - There is anecdotal evidence, not benchmarked, that soil depth and fertility increases and grass quality improves
- Farming at MSO will:
 - Minimise the impact of change on the environment
 - Maximise the impact of the historical investments sunk into the managed landscape

2. The Case against un-restricted ‘rewilding’ in the UK

- ‘Rewilding’ will destroy the investments of centuries in the managed landscape
 - Change is never “free”. The managed landscape has absorbed work and energy in being changed and the amount of effort put in is never fully returned but it has worked economically as the changes have been small over a long period of time
 - ‘Rewilding’ will squander the investment of centuries. The changes of ‘rewilding’ will also not be “free” and the environment will be put under stress whilst it finds a new point of equilibrium
 - The end point of ‘rewilding’ will not be some previous state from the past, it will be just different and unpredictably so.
 - When a new equilibrium is set the landscape will still need to be maintained. A managed landscape needs to be controlled by one means or another. This maintenance will be costly and will no longer have the offsetting element of an energy-based income stream
- Farming will be re-discovered as the most cost-effective way to maintain the landscape
 - Proper farming methods and MSO (maximum sustainable output) levels of output will deliver optimum levels of bio-diversity in the landscape, anyway. (Specific patterns of bio-diversity may never be possible, either physically or economically)

3. The Case against cheap food policies and output-at-any-costs

- Policy makers have pursued an *output-at-any-costs* strategy as a default position which is a legacy of two world wars
 - It reduces the volume of imports and the burden of foreign exchange
 - It promotes the practice of “forcing” with artificial substitutes for *Nature*
 - These substitutes, which carry a massive carbon-footprint, are adulterating the environment
- Farmers have complied with the strategy, but:
 - In the mistaken belief that volume alone will drive a business to a break-even point and beyond
 - This view is mistaken because it is founded on a business structure with linear variable costs and farming, it has been proved, has non-linear variable costs
 - This mistake is central to the intrinsic levels of un-profitability within farming
- Policy should be directed at encouraging farmers to operate at MSO (maximum sustainable output) levels
 - Profitability will be maximised at some modest reductions in total output
 - Adulteration of the landscape will cease

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Objectively Managing the Landscape for *Nature*

Many people may well be zealous about *Nature* and sustainable farming. However, they have to accept that *Nature* will always, over time, randomly seek to restore an original condition or a new equilibrium. The greater the disturbance by farming, the greater the forces of restoration will be. Right now, today, *Nature* is still not being given the opportunity to restore any sort of balance, albeit one that will end up altered from the original.

A subjective approach, deciding how we think *Nature* should look, will not work. Historically, *Nature* has been nudged along by human intervention. But this nudging has been incremental and has, until the early to mid-1900's, resulted in an unstable equilibrium, where slow changes in farming methods has allowed time for *Nature* to randomly adapt. This has resulted, by default, in a *managed landscape*.

More recently, post 1900 perhaps, the change has been fast paced and forced: an output at any costs approach. The landscape, although still managed, is no longer in an optimum state of equilibrium, a consequence of being forced. Artificial products: fertilisers, sprays, purchased concentrates and other inputs, help sustain unrealistic (and unprofitable levels) of output that lead to degradation of the soil and landscape in the form, for example, of reduced soil fertility, increased water run-off, water course pollution and biodiversity loss.

Simply by objectively managing the landscape for *Nature*, consciously determining to treat *Nature* as a partner, a stakeholder even, by working with *Nature*, rather than substituting for it, will, at some point, re-establish an optimum state of equilibrium (and the greatest farm profitability). The result will be unforecastable: *Nature* can only act in a random way.

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