

Sir George Stapledon - a supporter of organic farming?

Surely this question must be one of the easiest to answer in modern linguistics!

This particular knight was famous for three things – the development of the “S” strains of grasses and clovers, his fervent belief in ley farming as an agricultural system, and his campaign for the status of the Cambrian Mountains as a National Park. None of these are a direct link to what Sir George’s thoughts might have been on organic farming systems today, but let’s look at the evidence we have from our present situation, and try to progress from this to what he would have thought.

From all that we presently know about the future of agriculture, both in Great Britain and in the world as a whole, the requirements in the coming years will be –

- meeting the demands of a population that shows no signs of slowing its rate of growth, for food which will be safe to eat – and of the types they want to eat!
- production which does not deplete, or rely on, unsustainable resources, and
- production which does not damage but maintains, or even enhances, the natural environment.

These requirements may also be increased by a demand for replacements for fossil fuels, and for agriculture to play an increased role in the fight against climate change.

If we look at Sir George’s work, his achievements, and his passions, we can see how easily he would have understood these requirements, and why they would have encouraged him to farm organically.

His development of the “S” strains contributed enormously to the potential for grassland to support higher levels of stocking, and therefore of production, without the need for large amounts of ‘artificial’ nitrogen fertilisers. The role of grassland has now assumed even more importance than Stapledon would have claimed for it. In many agricultural systems, grassland and grass leys are part of the systems that support not just *Homo sapiens*, but all forms of life, on our planet.

But, one might ask, why should these systems not be maintained on ‘conventional’ lines? To begin with, there is little, if any, scientific support for the idea that Earth’s reserves of fossil fuels are infinite, and most of the agro-chemicals on which ‘conventional’ farming is based are either derived from these chemicals, or require their use in the production processes. So, no matter how far into the future we predict the extraction of the last litre of fossil fuel from the last natural source in the world, we should recognise that that day will eventually come. Many scientists believe that it may come much more quickly than the development of alternatives.

As the early Rothamsted experiments showed, one of the main requirements for satisfactory crop yields is an adequate supply of nitrogen. This was one of the premises in the arguments that Stapledon, and his followers, used for the adoption of ley farming – the nodules of nitrogen-fixing bacteria on the roots of clovers would supply nitrogen for the grasses, and the grass roots and vegetation with the clover nodules would supply nitrogen and other nutrients for a following arable crop. So, when other sources of nitrogen derived from fossil fuels are no longer available, the use of grass and clover leys will obviously make a valuable contribution to a sustainable system of agriculture, and a replacement for nitrogen fertilisers derived from fossil fuels.

The other types of agro-chemicals – herbicides, fungicides, insecticides, and molluscicides – are also dependent on the use of fossil fuels for their production. One of the main benefits of ley farming is that the ley reduces the risks to the yield of the following arable crop – that is, the grasses and clovers serve as a ‘break’ crop. Here again, Stapledon would have been a very emphatic supporter of organic farming, because he realised the role that the grass/clover ley could play in reducing the damaging effects of all types of crop pests, both animal and vegetable, whether or not chemical control was an alternative.

Stapledon realised that the combination of leys and arable crops was what we might now call a ‘win-win situation’ for another reason, and one which is recognised as almost a *sine qua non* of organic systems – the synergistic effects of combining grass/clover leys with livestock, and these with arable crops. The leys and livestock add nutrients, better soil structure from organic matter, and the break-crop effects on weeds, pests and diseases (plus, of course livestock and their products as cash sales); the arable crops produce both cash sales and livestock feeds and bedding. Together, the combination makes a largely sustainable and viable system for food production.

Quite apart from the lobbying on behalf of organic farming we might expect from Stapledon due his belief in ‘natural’ systems of farming, we could also rely on his support for organic systems because of their lower impact on the natural environment. As a scientist who believed that the Cambrian Mountains should not be defiled in any way – by wind turbines, or any other potential threat – he would be capable of seeing the links between the demand for agro-chemicals in conventional agriculture, the use of fossil fuels to produce them, and the environmental damage caused by both the chemicals and the use of the fossil fuels. He would see that it is our dependence on fossil fuels that has created both the threat of climate change, and the risk to natural environments as we struggle to replace the fuels and reduce the threat while also feeding the world’s population.

The last query that might remain in Sir George’s mind about the advisability of organic farming systems would probably have concerned their ability to feed this ever-growing world population. We can only say, at this stage, that the jury is still out, the verdict not yet delivered. However, being the rational scientist that he was, I believe Stapledon would have accepted the fact that if organic farming cannot cope with the demand, there is no other system that can do so when fossil fuels become non-existent – or at least, unaffordable. He would have been tempted, I suspect, to explore further developments to the system that would remove its dependence on fossil fuels, even as the motive force for farm machinery. Methane production from animal manures for use as a fuel, and on-farm micro-generation of electricity, would have appealed to his common-sense approach to such problems – and perhaps more use of the potential water-power from his beloved Cambrian Mountains.

Yes, George Stapledon would not only have been an organic farmer – he might even have managed to convince people in power that it is not just a better route, but the **only**, route to take to safeguard our future.

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Winner of the Stapledon Essay prize offered by Professor Wayne Powell of IBERS at the OCW Producers’ conference, October 2009