



The Church, the Bible and Enlightened Agriculture

Inappropriate modern industrial agriculture practices are failing us. We ought to be able to feed everyone and look after the Earth, but we're not. Christianity has a powerful agrarian tradition and moral framework that can help reform farming and help us overcome the major problems the world is facing.



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The world is in a horrible mess. This century could be our last in a recognisable and tolerable form. Yet, it doesn't need to be. Out of a world population of seven billion, one billion are chronically hungry. Yet, we easily produce enough to ensure that everyone could be fed to the highest standards of nutrition and gastronomy. Half of all species (possibly around 4 million out of an estimated 8 million) are conservatively estimated to be in imminent danger of extinction. Yet, we could feed ourselves well and still ensure that our fellow creatures thrive. The fabric of the Earth is severely compromised and the climate is about to flip with consequences that cannot be foreseen in detail but are bound in the short-term to be destructive. Yet, this need not have happened and with the right policies the destruction could still be significantly mitigated. A key cause of all the disaster is inappropriate agriculture. We have all the technique and know-how that's needed to do things well, but we choose technologies and an economic dogma that are bound to lead us in the wrong directions, and all that the governments and corporates and their chosen advisers who run the world can offer is more of the same.

The Christian Church and all religions have key roles to play in helping to put things right, even at this late hour. In particular, Christianity and all the Abrahamic religions have a powerful agrarian tradition that reaches back to the earliest books of the Torah. More generally, what has gone missing from modern agriculture and the economy as a whole is morality: a sense that we *ought* to be ensuring that everyone is well catered for and that we *ought* to be looking after the Earth and its creatures and that to fail so disastrously on both fronts, when we could be doing all that needs doing, is a sin: a crime

against humanity and against nature. In all religions, morality is central and is invariably of the kind known as virtue ethics. It is focused on the essential qualities of compassion, humility and reverence and not, as in the modern material world, on a crude utilitarian assessment of cost-effectiveness. In all religions, too, morality is underpinned by a metaphysics that includes a sense of transcendence, the feeling that there is an intelligence behind the material surface of things, and that what we do matters. It is time, in short, for the Christian Church and for all religions to focus on the real and urgent problems of the world and to take a lead, primarily moral, but also technical.

Our education is such that we tend to think of biblical times as ancient – as in ancient Egyptians, ancient Greeks and ancient Romans. Yet biblical people were modern people. Agriculture in particular was already old and well-established by the time that the Torah was written. Farming surely began in primordial form at least 40,000 years ago and was practiced on a scale large enough to be seen in the archaeological record from the time of the last Ice Age, around 10,000 years ago.

The three main lines of farming are all described in the opening chapters of Genesis. First there was horticulture – from the Latin *hortus* meaning garden – featured in both testaments not least as the culture of vines, figs and olives. Adam and Eve were born into a garden (and paradise *means* garden or deer park).

Next to be developed, historically (or perhaps first equal chronologically) was livestock management, which became pastoralism: appearing first in the Genesis 4 with Abel the shepherd. Shepherds and sheep are given

a good press throughout the Bible, they are vital for to a semi-desert people. Mixed herds also feature, because combinations of species make best use of the succession of plants through the changing seasons. The proportion

what is missing is a sense that we ought to be ensuring that everyone is well catered for and that we ought to be looking after the Earth

NOTES

1. Nowadays, on the grand, global scale, arable is favoured over livestock – to the huge detriment of the soil and landscape. That is another story, but we should have listened to Genesis 4.

2. UNEP's International Assessment of Agricultural Knowledge, Science and Technology for Development, 2008.

3. Available at www.bis.gov.uk/assets/foresight/docs/food-and-farming/11-546-future-of-food-and-farming-report.pdf

of camels, donkeys, goats, sheep and cattle in Job's herd mirrors almost exactly the mixed herds of some modern African nomads. The kosher law that forbids the seething of kids in the mother's milk, or combining milk and meat of any kind in the same meal, surely reflects the fact that if an animal in the harsh conditions of the desert is lactating, then there can be no case for slaughtering her or her offspring; so meat should be available only when the mothers dry out. Pigs are forbidden (so some scholars suggest) not because they are literally unclean but because they are woodland creatures, absolutely unsuited to the desert way of life.

Last on the scene, historically, came arable farming, the cultivation of plants on the field scale. Arable provides most of our staple crops, primarily cereals, which in the Bible mostly means wheat and barley. Staple means that these crops supply the bulk of our macronutrients: energy and protein. Arable farming is intrinsically intrusive, not to say aggressive: it requires us to transform the landscape; to remove the native flora and (conventionally) to plough the bare soil. Pastoralists by contrast, at least traditionally, left the native flora intact and simply tried to make best use of it. Arable and pastoral farming therefore can seem to be incompatible, and this leads to tension. Cain was the first of the Bible's arable farmers. However, Genesis 4 states that whereas God looked with favour on Abel and his offering, God did not look with favour on Cain and his offering (Gen 4.45). This caused an argument between the two brothers. This tension between pastoralists and arablits continues today, although it can be resolved in systems of mixed farming of the kind that began properly to emerge in the fourteenth century, truly an age of agricultural revolution.¹

Alongside all the dedicated farming, the people of the Bible also made judicious use of wild plants including culinary herbs and a host of balms and scents and unguents, most famously including frankincense and myrrh, plus the occasional (perhaps one-off) benison of manna. Finally, agriculture was and is supplemented by fishing and opportunist hunting (e.g. of quail); and honey was the occasional but much-valued bonus, for those with the skill and nerve to gather it from the wild bees nests.

There is a lot wrong with the agriculture portrayed in the Bible. There are crop failures and years of famine, and murrains – not least of boils among cattle, as in Exodus, which many have suggested was anthrax. The work could be immensely harsh, as described not least in Ruth. But the gross statistics suggest that farming in its earliest recorded years was very successful. It is estimated that

at the end of the last Ice Age, when it seems that formal agriculture first began in earnest, the human population worldwide was around 10 million, which is perhaps as many as the world could support so long as they lived as hunter-gatherers. But by the time of Christ the population had reached an estimated 100 to 300 million (probably nearer the latter) – a ten to thirty-fold increase. Industrial agriculture of the kind we have now, which makes use of a range of formal sciences and depends absolutely on fossil fuel, notably oil, did not start to make a significant impact until the 1930s, by which time world numbers were approaching three billion: 3000 million. In other words, agriculture of the traditional kind, recognisably similar to that of the Old Testament, was able to bring about a 300-fold increase in human numbers.

Since the 1930s human numbers have increased by another two-and-a-half times – a rise that is commonly attributed to industrial agriculture. Indeed, the modern myth, clearly accepted by many a modern scientist and by politicians, is that industrial agriculture has saved us from mass famine. It seems to be assumed that traditional-style farming had run out of steam by the 1930s and that without the industrial kind, half of us would not be here. In particular, agrochemistry in the form of artificial nitrogen fertilisers, pesticides, herbicides and antibiotics appeared in the nick of time, like the US cavalry of the old Western movies. We are further given to understand that we will need 50 per cent more food by 2050 and that this can only be supplied by more agrochemistry (now aided by biotech) and bigger machines. Again, people in high places, the policymakers, clearly believe this. But the modern myth is well, myth. It simply is not true – or at least, only marginally so. I was educated in science and love its insights. I believe that it is one of humanity's greatest achievements and greatest assets. But agricultural science (and a lot of other science too) has fallen into bad hands and as things are it is among the world's greatest threats. What a pity.

To begin with, the doubling of human numbers since industrial farming came on the scene is small beer compared with the 300-fold increase that had already been achieved. Secondly, by the time industrial agriculture appeared, the really hard work had already been done: wild animals had been turned into domestic livestock, more productive and far easier to handle, and wild plants (often toxic and fibrous as string) had been transformed into a huge range of highly desirable crops brought from all around the world. Furthermore, on the vast scale, forests had been cleared and marshes drained and a wide range of highly ingenious machinery, including efficient ploughs and reapers and mills were already well established, and a host of techniques and strategies to go with them, of cultivation and rotation. Seen against this huge background – basically one of craft, with a little formal science on board by the end of the eighteenth century – the achievements of modern industrial science, including oil-based industrial chemistry and biotech, emerge as the gilt on the gingerbread.

Neither should we assume that all the increase since the 1930s should be attributed to the new industrial

techniques. Traditional farming, including traditional breeding (selecting and crossing) was still progressing apace, and surely would have achieved a great deal even without the oil-based technologies. Besides, the area of land under cultivation has increased by at least a third since the 1930s so the overall rise in output does not imply a commensurate increase in yield per unit area.

The myth that at least half of us owe our lives to industrialisation is exploded by figures from the IAASTD,² which show that traditional farms (essentially biblical in structure) still supply about half the world's food. Another 20 per cent comes from fishing, bush-meat and people's back gardens. In short, only 30 per cent of our food comes from the industrial farms that we are told have saved the world. It seems that our lives in the modern age are at least as firmly (or precariously) grounded in legend as they were at the time of Genesis; but we, with all our apparatus for collecting and disseminating data, have far less excuse for getting it wrong.

Neither is it true, as we are constantly told from on high (not least by the UK government's last scientific adviser Sir John Beddington in his Foresight report on *The Future of Food and Farming* in 2011³) that we will need 50 per cent more food by 2050 just to keep pace with rising numbers and demand. The United Nations tells us that by 2050 the world population will have risen to 9.5 billion. But it also tells us that although numbers are still rising, the *percentage* rate of increase is going down and by 2050 the percentage rise should be down to zero. In other words, the population should stabilise in 2050, at 9.5 billion and then, if the present demographic trend continues, numbers should start to diminish.

Still, though, 9.5 billion is a lot of people. Indeed, since we currently manage to feed only 6 billion satisfactorily (though some of them are seriously overfed), this seems to mean that we do indeed need 50 per cent more, just as the Foresight report suggested. But Professor Hans Herren, co-chair of the IAASTD and President of the Millennium Institute in Washington, points out that the world already produces enough macronutrient (energy and protein) to support 14 billion people – 50 per cent more than the world is ever likely to contain. The reason we fail to feed the present 7 billion is not because we don't produce enough. Rather, it's because we don't produce it in the right places, we don't distribute it properly (not least because with the present economy the food goes to those who can pay most, rather than to those who actually need it), and, above all, we waste it. In the Third World about a third of the crop is typically lost *after* harvest. The Food and Agriculture Organization of the United Nations (FAO) reports that in the developed world, about a third of all food is wasted after it has reached the kitchen. In addition, we now feed about half of the world's cereal crop – the principal staples! – to livestock, who should be fed on grass (which, instead, typically, is hideously mismanaged) or, these days, is turned into biofuel – in other words, is burnt.

In short, the idea that we need 50 per cent more food, dinned into us from on high, is pure hype; and the idea that we will need to go on increasing output indefinitely

to keep pace with rising numbers is based on the 200-year-old speculations of the English cleric Thomas Robert Malthus and is absolutely at odds with the modern demographers of the United Nations.

Besides, if we did need more food, we certainly shouldn't follow those that advise us that we need to industrialise our farming even more, with huge factory farms and 1000 hectare fields, all propped up with oil-based agrochemistry, with bells and whistles in the form of genetically modified foods. Industrial arable farming with its continuous ultra-high yields is destroying the world's soil before our eyes. This is a far more important decline than that of oil. Ultra-productive cows in their mega-dairies commonly yield around 10,000 litres (2000

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gallons) per year which is about three times as much as a traditional dairy cow and at least six times as much as a wild cow. These cows can hardly stand because their udders are so big, they are constantly on the edge of metabolic collapse, and commonly are slaughtered after two lactations (at about age five) – although traditionally raised cows commonly lasted for at least eight lactations to be slaughtered at age 12 or more (and wild cows may live to 20-plus). In other words, industrial agriculture is already reaching – or, indeed, has already exceeded – the limits of what the world and our fellow creatures can stand. A further increase of 50 per cent would be heroic but also dangerous and hideously cruel. However, since such agriculture provides only 30 per cent of our food, all that heroism (and danger and cruelty) would increase overall output by only 15 per cent.

Yet all who know Third World farming agree that with just a little logistic help – including better roads and fairer banking and guaranteed prices – most traditional small farms could easily double or triple their output: and this would produce a 25 to 35 per cent increase in the total amount; and this output would be in the places where it could do most good.

But the governments, corporates and banks who determine the course of world agriculture, and the scientists and economists who advise them, are putting the lion's share of all their efforts plus our taxpayers' money into more of the industrial agrochemical kind. It is, after all, in the short term, more profitable; and in the modern, maximally competitive, ultra-monetised neo-liberal market economy, that is the standard by which agriculture and, indeed, all human endeavour, is judged.

I seem to remember references in both testaments to compassion, and humility; and the specific suggestion that it really isn't a good idea to measure value simply in material terms. Perhaps, and especially in the context of modern farming, these notions need re-visiting.