

SOIL IS EVERYTHING

GEORGE YOUNG

George Young farms at Fobbing Farm in Essex, UK.

‘We can only grow properly nutritious food with healthy soil. It is no longer viable to just talk about food security – we must also focus on nutrition and soil security.’

Soil is the forgotten *everything* to humanity. It is the medium that feeds us, clothes us and (traditionally at least) houses us. Yet the past fifty or so years, post Green Revolution, have disregarded the importance of soil, treating it purely as a blotting paper into which plants can place their roots.

Finally, we are witnessing the error in this approach to agriculture. And some exemplars of agroecological farming are demonstrating that exceptional and exciting results can occur in a short period of time by understanding the true relationship between soil and humans.

The Green Revolution, which resulted in an abundance of food, leading to vast population growth, could only occur with the use of synthetic pesticides and fertilisers. These products go against nature, enabling poor quality farming to occur. They are hugely costly from a carbon standpoint to produce and transport, and also cause carbon losses from the soil when applied, as well as damaging all the microbes, fungi, bacteria and bugs & beasts which form the first trophic levels of our rich and biodiverse ecosystem.

Even disregarding the huge damage these synthetic agricultural products do to the life in our soils, there is a more worrying point to link the health of our soils to the health of humans. Crops grown in dead soils, pumped with fertiliser in order to produce a commodity crop, are likely to only have the key macro-nutrition, and significantly less micro-nutrition. The plants growing in a lifeless medium

have nothing apart from applied products to draw on.

However, there is another way: a way which restores soil health swiftly and holistically, which mimics nature, and which leads to significantly healthier food products to drive a healthier and thriving population of humans.

On my farm I am in the midst of this transition.

I returned to the family farm eight years ago. At the time we would be considered a conventional arable farm, growing three crops: wheat, oilseed rape and peas, in a rotation of wheat-wheat-rape-wheat-wheat-peas *repeat*. These were grown with the typical mix of synthetic agrochemicals and fertilisers. We did also have some store cattle (castrated males, bought young and sold older for someone else to fatten), however they were not integrated into the arable farm.

That was then – this is the transition we are making now...

Initially I added a more diverse mix of crops into my rotation. We now grow wheat, heritage cereals, beans, peas, lentils, buckwheat, hemp, diverse species grass/herb/legume leys. We are rotating our cows (now a breeding herd of Red Poll cattle, native to the South East of Britain) across our arable fields. We have planted 50 acres of agroforestry – around 7,000 trees in linear belts up one field, with the rest of the farm to follow. And I am dedicating a strip of land through the middle of my farm to be wild and host a plethora of wildlife,

never to be disturbed. We are also undergoing conversion to organic agriculture.

All of these changes are focussed around a central desire: to fix my tired and overworked soils and to ensure that the food products I grow are nutrient dense for the healthiest end products possible. This is a system based around building a soil ecosystem rather than applying products which destroy it.

Ruminants (e.g. cows and sheep) grazing diverse species leys for at least four years are the cornerstones to how I am rebuilding soil health. These are the key facets which allow me to grow crops for three or four years before rotating back into grazing leys.

My diverse leys feature upwards of 25 species and varieties of plants, all with varying rooting depths and profiles. These plants work synergistically together, forming fungal networks between the root systems, and sharing nutrition. This mixes soil nutrition in the entire soil profile. Some of these plants (e.g. clover) fix nitrogen from the air into the soil, adding natural fertility, whilst others will naturally mine phosphorus and potash, putting them in bioavailable forms for following crops to utilise.

These leys also happen to be exceptionally healthy for animals to graze: providing a fantastic varied diet, keeping the animals that eat them healthy – naturally free of worms and other parasites, circumventing the need for synthetic products to be used on the animals which would naturally then damage the soil life. The animals have two excellent additional properties: they tread the plants down into the soil, and defecate on the land. The treading of live plant material provides food for worms, and the dung provides food for a vast array of small creatures, which enhances the biodiversity present, enabling even more biodiversity further up the food chain. The dung also naturally fertilises the soil.

With the amazing remedial work performed by livestock and long-term resting of the land, it is now possible to utilise some of that enhanced soil health to grow some exceptional crops. I have moved towards growing heritage cereals alongside the more conventional modern wheat, even though they yield less and have better rooting systems. Yielding lower may initially sound like a bad thing, but the combination of that and their rooting means that these crops can access all the micronutrition in the soil, and bring that through to the harvested grains. Higher yielding modern crops on the other hand may yield more, but at the expense of micronutrition dilution and resilience to disease.

It has been said that the version of agriculture for which I am a proponent will not feed the world. However, reports such as FFCC/IDDRI *Farming For Change* report now contradict that. [See article by Sue Pritchard.] Mine is a type of farming which values all the creatures that get to call my farm their home, rather than just looking for mass food production.

It is true that people will need to eat a more diverse diet, and waste less, in this system. But is that a bad thing? We currently have a malnourished and obese population. Eating more nutritious food and fewer calories have strongly beneficial outcomes – leading to a healthier & happier population, and costing health services and the economy considerably less.

We can only grow properly nutritious food with healthy soil. To disregard that in favour of unproven technological fixes in the food system is asinine. Simple to implement, agroecological farming practices, some examples of which I have outlined, give rise to resilient farm businesses, and provide fantastic food alongside ecosystem services. It is no longer viable to just talk about food security – we must also focus on nutrition and soil security.