



Contents

#LivestockDebate – Climate Destroyer or Saviour via Soil?	2
Calculating livestock's environmental footprint is complex –	
but other questions are simple.	5
Let us Embrace Cooperation not Conflict.	7
Livestock Will Save Us – A Regenerative Perspective	9
Behind Closed Doors – the Vulnerability of Big Meat	12
Pssst! The Answer is in the Soil!	14
Do we Have the Tools to Choose Sustainable Meat?	16
Let us Evolve and Extend our Sympathies to all	
Living Creatures.	17
Environmental Destruction Directly Impacts Farm Profits	19
Climate, Livestock, Carbon & the Lobby	21
#LivestockDebate: it's a wrap (for now!)	23
Contributors	31
About us	34



10 January, 2016

#LivestockDebate – Climate Destroyer or Saviour via Soil?

Dr. Oliver Moore, Agricultural and Rural Convention 2020

Is the way we **farm animals** and **turn them into food** part of the **problem** or the **solution** to the myriad of **social and environmental issues** we face today? This is the **core question** we address in our **livestock debate series**.



photo by schneekrischen

Sustainable food

• How could *meat and other livestock products* be farmed, distributed and consumed *better*? What's *wrong* with how it is being done *now*?

• Is there a <u>carbon fetishism</u> at play in the climate change debate, to the detriment of genuinely *sustainable diets* and more broadly *sustainable agri-food systems*?

Climate Change

• Post <u>COP21</u> and the <u>Paris Agreement</u>, there is renewed focus on farming and food. Are the *assumptions* about livestock's quite significant contribution to greenhouse gas (GHG) emissions *accurate*?

• Do these commonly accepted figures on livestock's contribution to GHG emissions accurately take into account *carbon storage in soil* via ruminant (sheep and cattle) activity? Equally, is the *science* behind the *regenerative agriculture* movement *robust*? And how is the *overall food system* – from the fertility/field end to the landfill/compost end – integrated into the figures?



Morals and missing links

• What are the *morals* of the *story*? Where do *justice* and *ethics* fit in? For example, ethics regarding the *treatment of animals* and justice regarding *marginalised food producers*, people who might benefit more from a focus on <u>food sovereignty</u>, or what could be called a *people's* <u>agroecology</u>? What's missing from this debate?

As part of ARC2020's 2016 focus, we'll be hosting some debates on key issues for the agri-food and rural actor communities. Livestock is number one.

The impetus for this debate has been the emergence of the what could be called the livestock soil regeneration movement. It has long being argued and assumed by many that livestock in general and meat in particular meat is unsustainable: that they contribute excessively poor diets, much environmental damage and, especially, climate change.

To take just the latter, though figures from different organisations vary, the <u>UN FAO</u> suggest "total emissions from global livestock" represent "14.5 percent of all anthropogenic GHG emissions".

So while there are plenty of <u>issues worth addressing</u> many argue that dietary change encompassing less meat – or perhaps no meat or even animal products – is essential for the planet's socio-environmental well-being (see "more information" section below for some of these from 2014-2016).

In recent years however, an alternative view has emerged, one that considers the carbon building role – or, potential – of livestock in soil, while also looking more broadly at agri-food and dietary sustainability. This position does not necessarily promote the current industrial agri-food system and its use of animals as sustainable, but does promote ways in which livestock could be – and in some cases is – more sustainable in various parts of the world. Sustainable perhaps in the broader environmental, economic, social and political sense, but nonetheless regenerative.

Both strands are represented in numerous ARC2020 articles in recent times:

Meat reduction/elimination

False Dichotomies Promote Continued Animal Consumption (2014) How to cut EU agri-food Greenhouse Gas Emissions by 40% (2014) The Business of Pigs: Der Spiegel interview with Jochen Fritz (2013)

Regenerative Agriculture

<u>COP21 & Farming – Soil, Land & Climate Change</u> (2015) <u>A WholeFood System – agroecology, its cousins & consultations</u> (2015) <u>Agroforestry – saving the world with meat and sport</u> (2015)

In this debate series, we feature a host of experts from both sides of the Atlantic who make their cases for how they see livestock.



These include

International Panel of Experts on Sustainable Food Systems (IPES)

Institute for Agriculture and Trade Policy (IATP)

And very knowledgeable but and also quite different individuals Frank Armstrong and Sheldon Frith.

We will also take contributions from readers, and will be active on social media about this. We're especially looking forward to hearing from food producers. Do get involved via comments (including below) and on social media. Or <u>contact us</u> directly.

Finally, on a personal level I have to say I'm really looking forward to this debate. I'm a former vegetarian of 16 years, but I've also worked with livestock hill farmers who have <u>exclusively outdoor and grass fed animals</u> with zero winter feed iuputs*. My own PhD background is in agri-food and rural sociology, so I've been thinking about this for a long time. However I'm genuinely undecided on this issue!

Currently, I'm in the 'less but better meat' camp, but am I being delusional? Is this a waste of valuable nature space compared to a hyper-efficient animal factory farm capturing and using gases? Or, compared to a completely plant-based diet?

Its really interesting being open to suggestion, rather than, as so often happens on the internet, looking for the data that backs up your own case. So enjoy – engage – argue respectfully – and join in!



photo by tpsdave



Calculating livestock's environmental footprint is complex – but other questions are simple.

Olivier De Schutter, Hans Herren and Emile Frison on behalf of the International Panel of Experts on Sustainable Food Systems (IPES-Food).

When it comes to climate change, we are desperate to believe that there is an easy way out. In recent years, biofuels and then shale gas have allowed us to believe that our energy needs might continue to be met without any real trade-offs or lifestyle changes, or that our food needs might be seamlessly provided by new breadbasket regions at previously icy latitudes. Ultimately, the excitement dies down and the climate challenge continues to loom large. However, just enough doubt has been sown to hold back a more fundamental shift in the way we produce and consume. The waters have been muddled just enough to justify a 'wait and see' approach.

These are the dangers when it comes to the livestock debate. There is a major risk that the more complex conundrums will prevent us from answering other questions that are resoundingly simple.

Two key points must therefore be established from the outset. Firstly, current rates of meat consumption in wealthy countries – particularly red meat – are unsustainable under any circumstances, and must be reduced due to the burgeoning health and environmental impacts.

Secondly, industrial feedlot production yields too many negative outcomes on too many fronts to be justifiable. These systems require large quantities of imported feed crops, thereby displacing potential food production: an area the size of France is required for the EU to import its feed requirements. Meanwhile, they depend on extensive use of antibiotics, entail major GHG emissions (both in the production area and in the shipping of inputs and outputs to far-off locations), cause localized environmental degradation due to the huge waste they produce, and often subject animals to stressful and inhumane conditions. Industrial feedlots cannot conceivably be part of the sustainable food systems of the future. Their costs are particularly hard to justify when, as is so often the case, industrial feedlots serve up meat as an export commodity rather than as a source of protein for local populations.

Beyond this, there are indeed many complexities. Well-managed animal grazing can be compatible with carbon sequestration in soils. But grain-fed vs grass-fed is not what matters most. Whether or not livestock production is environmentally viable depends on the extent to which it is integrated into ecosystems, landscapes, farming systems and livelihood activities.

For example, in mountainous zones, livestock grazing can occur with low environmental impacts and few opportunity costs. Meanwhile, <u>mixed crop-livestock systems deliver resource efficiencies</u> by using animal manure to fertilize the soil, feeding crop by-products to animals and a host of other synergies. Where animals live off grass or agricultural by-products, the amount of calories for human consumption that they yield may actually be greater than those consumed. By way of comparison, typical feed conversion ratios range from 2 kg feed per kg meat to as much as <u>20kg in some beef cattle systems</u>, while varying considerably between different animals, different farming systems and different calculation methods.



Integrated systems also help to diversify farmers' income, and can therefore sustain livelihoods and keep small farmers on the land. Without them, the environmental impacts of other land uses (e.g. large-scale commodity crop monocultures) could be infinitely worse. In other words, the more holistically the environmental footprint is considered, the better the mixed systems fare.

There is no simple formula for defining the threshold between sustainable and unsustainable livestock farming. However, it is already clear that the more livestock farming is relocalized and reintegrated with landscapes, the more that feed is sourced locally and waste is re-used on the farm, and the more it is confined to land and to regions where few or no alternatives exist, the more sustainable it becomes.

However, the economic, socio-cultural and environmental viability of livestock farming in certain conditions should not be confused with the dominant modes of production that are currently practiced in order to support the exorbitant rates of meat and dairy consumption to which we have become accustomed in wealthy countries. There is no silver bullet for maintaining this pathway. The promises of regenerative livestock farming must not become the latest chapter of the fairytale which says that climate change can be mitigated without major lifestyle changes.



photo by RemivanSchie

18 January, 2016

Let us Embrace Cooperation not Conflict.

by Frank Armstrong

We have entered 'the Anthropocene' according to Professor John Robert McNeil where "human actions has had deep impacts on the basic systems of the Earth. Those systems include such things as climate and biogeochemical cycles". Livestock agriculture has played a major role in this process and the killing of animals for meat is linked to conflict between humans.



photo by STVIOD

The story begins just twelve thousand years ago with the Neolithic Agricultural Revolution. It brought exponential population growth and allowed hierarchical societies to develop. Domestication of plants and animals was the key to this new departure for a previously nomadic species.

By the turn of the twentieth century human population stood at one and a half billion and the farming template had already ravaged the earth's biosphere – in particular replacing much of the forested areas with grasslands for grazing ruminant livestock that pump methane into the atmosphere. The virtual extinction of the American buffalo was one obvious consequence. This also heightened violence between humans as David Nibert observes in Animal Domestication & Human Violence: Domescration, Capitalism and Global Conflict.

Since then the Green Revolution (c.1930-1960) brought sufficient food for a staggering seven billion with more than half of us (and increasing) living in cities. The use of fossil fuels has been vital for mechanization and in the Haber-Bosch process that brought a seemingly unlimited supply of fertilizer.



Producing more than enough of our staple foods we now feed excess grain to animals that had subsisted mainly on waste products or grasses humans cannot digest. The continued malnutrition of almost a billion people is down to a lack of entitlement, as Amartyra Sen observed, rather than limitations in global supply. Over half of the world's grain is still fed to other animals and we are experiencing an obesity pandemic.

The system cannot endure as it relies on finite fossil fuels that contribute to the worrying spectre of climate change. Humanity requires a revolution in food production as seismic as any before: shifting from the obsolete models of livestock-agriculture and fossil fuel-agriculture.

Farming must reconcile with Nature through permaculture, but also draw on older methodologies such as crop rotation, integrate food production within cities and drastically expand our range of cultivated crops. This should also give us ample scope for re-wilding many areas which will also benefit humans.

In most regions the cultivation of plant foods by calorie exerts far less pressure on the Earth in terms of carbon emissions, deforestation and species loss. What is more as humanity only belatedly became omnivorous we are well-adapted for plant-based diets as numerous epidemiological studies show.

But why not eat a little meat from animals that are integrated into natural cycles as some have suggested? The answer, I believe, lies in adopting a peaceful relationship with Nature or Pachamama. Domestication has been linked to human conflict throughout history from early cattle raiding to the descent of the Mongol hordes on Europe and the extraordinary expansion of the British Empire. The violence implicit in eating meat is accepted by most religions, and if permitted purification rituals are usually observed.

Shedding crocodile tears over what happens in nature compared to our slaughter methods denies the cooperation that is at the heart of all ecosystems. As a species we can embrace the spirit of cooperation by avoiding the unnecessary killing of more than fifty billion animals each year over the dangerous tendency towards conflict generated by domestication. Otherwise the Anthropocene could be of very short and brutish duration.

Reforming our agriculture and moving from seeing other animals as chattel is a huge cultural and scientific challenge. Fortunately today solutions can be shared easily and rapidly disseminated. The Anthropocene confers great responsibility and ending the violence of animal exploitation can help reconcile us to Nature and reduce our demands on Earth. It is a simple formula: eat plants not animals.



25 January, 2016

Livestock Will Save Us – A Regenerative Perspective.

by Sheldon Frith

Livestock management is quietly undergoing a massive transformation. It began in the 1970s when <u>Allan</u> <u>Savory</u> developed Holistic Management, and from there many farmers have continued to refine the art of grazing.

Holistically Managed livestock are bunched close together, moved around the land frequently, and don't return to the same piece of land for a long time. They mimic the behavior of the natural herds which used to roam the entire Earth.

<u>Holistic Management</u> has spread like wildfire among grass-based livestock producers because it dramatically increases grass growth. Recently, however, an unexpected benefit of this grazing technique has been discovered: *it sequesters carbon in the soil at an amazing rate.*

I must make it absolutely clear that I am *against* factory farming. The evidence that factory farms are environmentally destructive is overwhelming.

Holistically Managed livestock are completely different.

Only a short time ago the Earth supported staggering numbers of huge herbivores, called megafauna. These <u>megafauna</u> lived for millions of years without causing global warming.



The Woolly Mammoth lived up until the early Holoscene. Flying Puffin / CC BY-SA 2.0



This is despite the fact that the total biomass of these animals was significantly higher than the total biomass of all large animals, including humans and livestock, on the Earth today. All of these animals were emitting methane from their digestion and exhaling carbon dioxide. How is it possible that this did not effect the atmosphere?

The answer lies in the soil. Through their specific patterns of grazing, trampling, and digesting, large herbivores greatly stimulate soil microorganisms. These soil organisms are responsible for sequestering carbon and methane in soil.

Conventionally Managed livestock do not behave like a natural herd. Their beneficial relationship with the ecosystem is broken. In these situations they are *not* sequestering carbon, or methane, and become significant contributors to global warming.

Holistically Managed livestock replace the essential ecosystem services that the lost herds of megafauna used to provide. The ecosystem immediately begins to regenerate, and carbon is stored in the soil at an astounding rate.



How much carbon do Holistically Managed livestock sequester?

Although the idea of sequestering carbon with Holistically Managed livestock has only entered public consciousness very recently, there is already a surprising amount of data documenting its effectiveness:

- <u>Emerging Land Use Practices Rapidly Increase Soil Organic Matter</u> a study of three farms in the southeastern USA found that they sequestered 3.2 tonnes of carbon/year/acre after switching to management intensive grazing.
- <u>GHG Mitigation Potential of Different Grazing Strategies in the United States Southern Great</u> <u>Plains</u> an analysis of different grazing systems found that converting to multi-paddock grazing , sequestered 2 tonnes of carbon/year/acre.





• <u>Communities in Landscapes project Benchmark Study of Innovators</u> shows an increase in soil carbon of 0.9% over the top 10 cm of soil with Holistically Managed livestock for 10 years on cropland compared to conventional management. **(0.43 tonnes carbon/acre/year)**

• <u>West Wind Farm</u> "In 2008 the WVU Soil Lab supervisor calculated that 4 tons/acre of organic matter increase meant that in 5 years each acre of pasture WWF had drawn 15 tons of CO2 from the air into the pasture." **(0.8 tonnes carbon/acre/year)**

• <u>Brown's Ranch</u> increased soil organic matter from 1.7% (1993) to 5% (2013), with certain areas of land rising to over 10% SOM in that same time period. **(2 tonnes carbon/acre/year)**

• Refer to the Soil Carbon Coalition's excellent map for more studies.

Using the average rate of carbon sequestration across all of the data above (1.7 tonnes/acre/year), Holistically Managed livestock could sequester over 21 Gt of carbon annually if they are put on all of the world's 12.5 billion acres of farmland. This would return the Earth's atmosphere to its pre-industrial state in just 13 years!

For more information about this calculation please refer to "The Calculation: Soil organic matter needed to bring down atmospheric carbon".



Conclusion

Eating more meat from Holistically Managed livestock is actually one of the best things we can do for the planet. As environmentalists, we need to stop making generalizations about livestock and meat which do not account for the dramatic differences between management systems. We also need to push researchers and policy makers to explore the potential that Holistic Management has for healing our planet.



30 January, 2016

Behind Closed Doors – the Vulnerability of Big Meat.

by IATP's Ben Lilliston

Already in January, workers entered 10 massive, confined turkey and chicken operations in Indiana and sprayed foam designed to suffocate the birds. When the cold temperatures froze the hoses, <u>local prisoners were</u> <u>brought in</u> to help manually kill the birds. Other operations <u>shut down the ventilation systems</u> killing the birds as heat temperatures rose. More than <u>400,000 birds have been euthanized</u> so far in an effort to contain a new strain of avian flu in the U.S.



photo by jlastras, via Wikimedia Commons

Last year, approximately 45 million birds were killed to contain the spread of a different avian flu strain in the U.S. Two years ago, a massive <u>piglet virus outbreak</u> killed millions of pigs (an estimated 10 percent of the U.S. hog population).

The rapid spread of new disease strains, made worse by <u>a changing climate</u>, is one very visible reason why the expansion of factory-style animal production is viewed as unsustainable. As Olivier De Schutter, Hans Herren and Emile Frison <u>point out in commentating</u> on livestock's ecological footprint– this industrial model of meat production "yields too many negative outcomes on too many fronts to be justifiable." Although this industrial model of animal production originated in the U.S., it is now truly global. Global meat

industry giants include: Brazil-based JBS (considered the largest meat corporation in the world); China-based Shuanghui (the world's largest hog producer); and U.S.-based Tyson Foods (the world's largest poultry producer).

While this model of production is now global, the U.S. experience exposes many of its unintended and often unspoken consequences. The <u>Pew Commission on Animal Agriculture</u> identified a host of negative impacts from industrial animal production in the U.S. on rural communities, public health, the environment and animal welfare.





In North Carolina, groups have called for the government to launch <u>a civil rights investigation</u> into how the concentration of hog farms, and associated manure lagoons, in largely minority communities have caused environmental and health problems. International <u>human rights violations</u> have been alleged associated with the dangerous work, and poor treatment, of U.S. meat and poultry workers.

Of course, this is more than a U.S. problem. In December, the <u>Institute for Agriculture and Trade Policy hos-</u><u>ted a webinar</u> where animal industry experts outlined eerily similar systems in the U.S., Brazil and India that force contract poultry growers to take on enormous financial risk, without having the power to negotiate fair prices. <u>China's embrace</u> of industrial animal production is accelerating the model's growth both inside and outside of China.

This factory-based model of animal production is gaining increasing scrutiny at least partially because of its large climate footprint. Much of agriculture's estimated 10-13 percent of global <u>greenhouse gas emissions</u> can be linked to the rise of animal agriculture – whether from methane emissions or through the use of synthetic fertilizer to produce the massive amounts of corn and soy needed for animal feed.

The U.S. example is again instructive. Manure related methane emissions from confined animal operations now account for roughly 30 percent of <u>California's total methane emissions</u>. The increased use of liquid waste lagoon systems in U.S. dairies led to a 115 percent <u>increase in emissions</u> from 1990 to 2012. Corn and soy-fed ruminants raised in confined systems produce more methane than grazing livestock. A U.S. government <u>report concluded</u> that enteric emissions decrease when shifting the feed of dairy cows from silage and grain toward more grass.

The multiple benefits of a more diversified farming approach, that includes animal production as part of an <u>agroecological system</u>, are becoming increasingly evident. The multi-year <u>International Assessment of Agri-</u> <u>cultural Knowledge, Science and Technology for Development</u>, which included 900 experts in 110 countries and international agencies including the World Bank and UN Food and Agriculture Organization, concluded that agroecological systems are good for farmers, food security and building climate resilience. Yet public policies – whether through <u>trade agreements</u> or <u>national farm policies</u> – continue to support the meat industry's exploitative system of production.

As the meat industry scrambles to inoculate massive confinement facilities from diseases like avian flu or the piglet virus– there seems to be little consideration that the model itself is badly broken.



1 February, 2016

Pssst! The Answer is in the Soil!

This contribution by Miles King was not commissioned as part of the livestock debate, but it is very apt as it taps into the core issues in the debate. It originally appeared <u>on his blog.</u>

As Arthur Fallowfield, the farmer character in the legendary Radio 4 comedy series '<u>Beyond our Ken</u> and <u>Round the Horne</u>, would have said, "The arnswer loies in the soil".



photo by jordantimpson70

I read, with interest and increasing disbelief, an article by George Monbiot in <u>the Guardian</u>. George, who I hold in very high regard, claimed that eating a kilo of Beef or Lamb, especially if it's from animals that have lived in the uplands of Britain, had the same carbon footprint as an individual flying to New York. George also couldn't quite believe what he was reading and contacted the author for more information. You can find the calculations at the bottom of George's piece <u>on his own blog</u> (not the Guardian version.)

I had a look at the paper the figures were based on – as I don't have access to scientific references for free I wasn't able to see where George had got his figures from, but the paper was published in the Journal of Agricultural Science. The <u>paper</u> compares the carbon footprint of cattle and sheep from 2 upland farms in the Cambrian mountains of Wales – and was received for peer review in February 2009. And yes, using these figures, you can get to the astonishingly high carbon footprints George mentions in his article.

But the story does not end there.

18 months later the same author, Professor Gareth Edwards-Jones, published a much larger more comprehensive study of 20 upland farms in the Cambrian Mountains. This was published as a <u>CCW policy research</u> <u>report</u> in September 2010. This gives quite a different – in some cases completely polar opposite, picture to the one George has painted.



On three of the 20 farms where the study took place, the production of cattle and sheep caused a net sequestration of Carbon. Yes, that's right. Producing lamb and beef can actually lead to the storage of Carbon. How could this be?

The answer really does lie in the soil. Soils, mostly under grassland, are the UK's second largest carbon store, after peatlands. One third of the UK's Carbon is stored in grassland soils, many of them in upland areas. The capacity for grasslands to store carbon depends on a number of things, including how they are managed. Grassland soils can also release the very potent greenhouse gas Nitrous Oxide, again depending on how they are managed – or example whether artificial Nitrogen fertiliser is applied. So how upland grasslands are managed has a huge impact on the carbon footprint of the animals, and therefore the meat, which is produced there.

As the Edward-Jones research found, this carbon footprint can range from 4 to 17 kgCO2e/ha for a kilo of lamb (liveweight) and 4 to 23 kgCO2e/ha for beef (table 3), before the Carbon sequestration happening in the grassland soils of the farm is even taken into account. Edwards-Jones did not calculate the per kilo carbon footprint after sequestration. He also used a conservative estimate of the capacity of grasslands to absorb carbon. Had he used a slightly less conservative estimate of carbon sequestration another 3 farms out of 20 may have been shown to be net Carbon sinks (table 9).

Time and again in the CCW paper, the authors point out how little research has been done into Carbon storage and sequestration in grasslands. Which is extraordinary when you consider that this is far and away the most important factor in determining the carbon footprint of meat from livestock. What is known is that wildlife-rich grasslands are known to contain high levels of carbon in their soils – up to <u>438 tonnes C per ha</u> (opens pdf download) – that's equivalent to over 1700 tones of CO2e – far higher than agriculturally improved ones. And converting arable or improved grasslands back to wildlife-rich ones causes them to rapidly absorb carbon, one study found at <u>over 3 tonnes per ha per annum</u> (opens pdf download) while continuing to provide grazing/fodder for livestock.

It seems strange that this very important piece of work was not published in a scientific paper. Sadly the reason was that Professor Edwards-Jones <u>died of cancer in August 2011</u>.

The problem with treating upland farming as one "thing" is that you end up with simplistic pictures of their environmental impacts, costs and benefits. Even among the 20 farms within the Cambrian Mountains research study there is huge variation. That variation will be reflected in other parts of upland Britain. But one thing does appear to be consistent – that uplands that support semi-natural habitats – wildlife-rich grass-lands, upland heathland, peatland, mires, scrub and so on – are net carbon sinks, hold water back to prevent downstream flooding, produce high quality food, and provide homes for some of our most threatened wild-life.

They are very different from other uplands (which form the majority) – the uplands overgrazed in the past and to a lesser extent today, supporting very degraded upland acid grassland, or grasslands that have been agriculturally improved.

While there may be good arguments for rewilding some uplands, the carbon footprint of meat produced there, amongst other factors, would indicate that some uplands are better for rewilding; and others need to be cherished for what they are now.



2 February, 2016

Do we Have the Tools to Choose Sustainable Meat?

Olivier De Schutter, Hans Herren and Emile Frison on behalf of the International Panel of Experts on Sustainable Food Systems (IPES-Food).

As we pointed out in our <u>previous entry</u>, the more livestock farming is reintegrated into landscapes, the more sustainable it becomes. The way that herds are managed is therefore key, and <u>Sheldon Firth</u> is right to draw attention to the multiple benefits of holistic grazing.

However, we must be realistic about what modern-day livestock farming looks like. The livestock herds of 2016 share the Earth with 7 billion people, expanding megacities, and landscapes demarcated by various forms of land use and ownership. This is a far cry from the era of the woolly mammoth, where animals could roam freely around a scarcely populated planet. Holistic grazing may be feasible and desirable for ruminants in agroecological farming systems, including as part of crop rotation schemes that would require two to three years of grazing.

The reality, however, is that much of our current meat production emerges from systems that respond to afundamentally different logic. Industrial livestock farming is hyper-intensive because it responds to consumer expectations for cheap and plentiful meat, without any consideration of the social and environmental costs. We must avoid implying in any way that dominant forms of livestock production in industrialized countries and densely populated areas can be tweaked to look more like holistic systems.

We must put an end to the factory farming model, and reducing demand for cheap industrially-produced meat is the only way to do so. There are, nonetheless, different ways of going about this. One way is by exercising discretion as consumers in terms of the types of meat we buy. Organic and free-range labeling already provide consumers with specific guarantees about rearing conditions.

Meanwhile, the 'full cost accounting' approach goes beyond labels and seeks to include all positive and negative externalities of food production in the final price. Important work on this front is now being undertaken in the remit of the <u>TEEBagfood project</u>.

We need these tools in order to assess the associated costs of industrial meat in rigorous and holistic ways. This will allow people at various parts of the value chain, from processors to supermarkets to consumers, to make the right choices.

On this front, the challenges are not merely technical. We need to develop and disseminate the tools we already have, based on an already large evidence base. And we need to find the political will to turn these calculations into concrete policy measures that allow food prices to reflect the true costs to society and the environment. Irrespective of these measures, and until they are in place, reducing overall meat consumption in developed countries is the safest bet for reducing our ecological footprint.



Let us Evolve and Extend our Sympathies to all Living Creatures.

by Frank Armstrong

In the Descent of Man Charles Darwin argues that the history of man's moral development has been a continual extension of the objects of his 'social instincts' and 'sympathies': Originally each man had regard only for himself and those of a very narrow circle about him; later he came to regard more and more 'not only, the welfare, but the happiness of all his fellow men'; then 'his sympathies' became more tender and widely diffused, 'extending to men of all races, to the imbecile, maimed and other useless members of society, and finally to the lower animals.'



"Wait for me while I go to preach to my sisters the birds" St. Francis of Assisi patron Saint of Ecology" photo by <u>inspirexpressmiami</u>

The evolution of our laws have run a parallel course. It is unthinkable that a father could have power of life or death over his family as a Roman paterfamilias did or that racial segregation and Apartheid could operate again. In 1948 the Universal Declaration of Human Rights was adopted by the UN General Assembly and took on the force of international law in 1976. Tragic conflicts endure but human beings are less inclined to kill and maim one another than they were in the past.

Alas we have been slow to extend our sympathies to other animals. Linked to the killing of over fifty billion domesticated animals is the impending <u>Sixth Extinction</u>. With farms replacing natural habitats that once acted as carbon sinks species are dying out in droves. Livestock agriculture is the leading cause of deforestation in many parts of the world, especially the <u>Amazon Rainforest</u>.

17





If Darwin is right our sympathies will evolve to include the plight of other animals. We have grounds for hope that the terrifying slaughter of animals that seems anathema to our nature may cease. This could bring more peaceful relations between humans. Leo Tolstoy wrote: 'As long as there are slaughter houses there will be battlefields.'

Livestock-apologists such as Sheldon Firth miss this big picture. Even his small picture – the thesis of holistic management – does not stack up. Holistic management was developed by the Zimbabwean ecologist Allan Savory whose previous theories led to <u>40,000 elephants being killed</u>.

Leaving aside the wisdom of trusting an individual responsible for the slaughter of such noble creatures, a comprehensive <u>review</u> of Savory's trial and others asserts that the system: 'failed to produce the marked improvement in grass cover claimed from its application'; further maintaining that: 'no grazing system has yet shown the capacity to overcome the long-term effects of overstocking and/or drought on vegetation productivity'.

Just as there are those who still deny human responsibility for climate change there are cranks who deny the role of livestock agriculture. Let us evolve and extend our sympathies to all living creatures.



photo by <u>skeeze</u>

7 February, 2016

Environmental Destruction Directly Impacts Farm Profits.

by Sheldon Frith

The I.P.E.S argues that the transition to Holistically Managed Livestock will not happen in our current economic situation because consumers just want cheap meat, and factory farmed meat is the cheapest. They propose a solution called "full cost accounting" to make food prices reflect the full environmental cost of the way that food was produced.



photo by <u>tookapic</u>

First, the environmental damage caused by modern agriculture does have an economic effect. Conventional farming practices are actually *less profitable* than sustainable farming practices. Conventional farming destroys soil, leading to constantly increasing input costs and frequent crop failures. Even net carbon emmissions have a direct economic effect: a producer who is sequestering carbon in their soil will grow healthier and more resilient crops than a producer who isn't. Crop failures, chemicals, and machinery would quickly bankrupt conventional farmers if not for the billions of dollars governments are paying (in the form of crop insurance, cheap loans, research grants, subsidies etc) to keep them afloat.

Factory farms are only able to produce cheap meat because of government programs which give them access to cheap grain. If these government programs were to be removed, factory farms would no longer be able to outcompete grass-finishing opperations. <u>Holistic Management</u> would become the norm, because the market would demand it. To see what this might look like I recommend reading about <u>Will Harris</u> and <u>Dennis Wobeser</u>, who switched from factory farming to Holistic Management (and actually made more money afterwords).





So "full cost accounting" must *remove* the government programs and subsidies propping up unsustainable agriculture. This may be all that is needed for our food prices to accurately reflect the environmental costs of producing them.

I would also like to address **Frank Armstrong**, who thinks we should extend our sympathies to all living creatures, and therefore we should not keep or kill livestock. A noble sentiment, but unfortunately it is actually <u>impossible to feed civilization</u> sustainably without keeping and killing large numbers of livestock. I have written <u>a book</u> explaining this issue in full detail, which will be released in just a few weeks.

Frank also engages in a half-hearted attack on Holistic Management. He cites a so-called <u>"comprehensive re-view"</u> which has been thoroughly disproven <u>here (scroll down to "Part 2")</u>. I would recommend that he reads <u>"Evidence Supporting Holistic Management"</u> and <u>"Rebuttals To Common Anti-Savory Propaganda"</u>.



photo by <u>Hans</u>



15 February, 2016

Climate, Livestock, Carbon & the Lobby.

By Shefali Sharma, Institute for Agriculture and Trade Policy

While the debate continues about holistic management and what "true cost" actually means for livestock production models and climate change, technocrats and governments are busy establishing standards for carbon intensity reduction in industrial animal agriculture. These discussions are proceeding at a rapid pace and remain largely obscure—both in terms of the technical language used and in terms of visibility.

For instance, the <u>Livestock Working Group of the Global Research Alliance on Agricultural Greenhouse Gases</u>, established at the Copenhagen climate talks in 2009, is forging ahead with defining standards for emissions inventories for livestock production. The goal is not to change or transform animal production to become more climate-friendly, but rather to find ways to reduce emissions within an ever-expanding, unsustainable, industrial model of production.

Countries report these inventories to quantify their reductions of emissions (intensity) to meet international commitments on climate change that served as a basis for the Paris climate agreement. The <u>most recent</u> <u>newsletter</u> of the Working Group reports:

Farmers and national statistics have a much better chance of reporting how much their animals eat on average, and thus to capture changes in emissions and emissions intensity over time. More importantly, the only chance to reduce emissions in Tier 11 inventories is to reduce the number of animals, whereas Tier 2 inventories allow countries to report reductions in emissions intensity arising from increased productivity. Advanced inventories thus demonstrate a win-win for agricultural and economic development goals and reducing the amount of emissions per unit of food produced.

The newsletter reports on a September 2015 workshop held with Southeast Asian countries to help them determine which livestock emissions they would prioritize and how to inventory them. As with the problematic counting of carbon in soils, the focus appears to be on simplifying quantification and a singular focus on mitigation, rather than concerns articulated by Olivier De Schutter, Hans Herren and Emile Frison.

Governments are rapidly embracing the key notion behind this alliance: how to continue our current economic model of production while producing less emissions. This means exacting even more meat and milk from animals than we currently do in the extremely extractive and debilitating industrial animal production model. The French government, for instance, has embarked on a massive pilot project:

To help the French dairy sector continue to achieve reductions in emissions intensity, a 'LIFE CARBON DAIRY action plan' has been introduced that aims to reduce the carbon footprint of milk production by 20% over 10 years, thereby avoiding emitting 140,000 tons of CO2 eq. The plan, funded by the European Commission (LIFE) and the French Ministry of Agriculture, is being rolled out across six pilot areas representing 65% of national production.



While much may be good or problematic in this plan, the fact is that very few details are available. The brochure for the project notes that "Carbon credit mechanisms may also be incorporated in the future in order to compensate for any negative economic effects."

It is no coincidence that an alliance started in Copenhagen by governments that wanted to quantify agriculture emissions and trade them on carbon markets, is helping developing countries set up emissions inventories for this sector. **Eventually, these inventories will be helpful in establishing carbon offsets for governments that can pay for them and allow their corporations to continue polluting.**

On the other side of the spectrum is a growing demand for reducing meat and dairy consumption as a critical way to deal with the climate problem related to livestock. IATP would clarify and advocate for the reduction of industrial meat and dairy consumption, since it is particularly this model of production that is rapidly growing to meet demand. <u>A report by Chatham House</u> states:

If meat and dairy consumption continues to rise at current rates, the agricultural sector alone will soak up 20 of the 23 GtCO2e yearly limit in 2050, leaving just 3 GtCO2e for the rest of the global economy. Even under the most ambitious of decarbonization scenarios, it will be near impossible for emissions from other sectors to drop to such levels by the middle of the century.

A shift away from industrial meat production will not be easy, as global meat companies have become increasingly politically powerful. For example, last year, the <u>U.S. meat industry spent \$3 million just to stop the U.S.</u> government from enacting dietary guidelines that recommended a reduction in meat consumption.

It will take a lot more than asking governments to reduce subsidies for industrial animal production, as <u>Shel-don Frith suggests</u>, to measure true costs and stop the tide of <u>corporate money (read Power) that continues</u> to <u>successfully stop initiatives and measures intended to make corporations pay</u> for the damage they are doing.

Moreover, until we stop free trade agreements such as the <u>Trans Pacific Partnership (TPP) and the Transatlantic Trade and Investment Partnership (TTIP)</u>, we will continue to see the literal expansion of meat markets for powerful transnational corporations who use the <u>World Trade Organization</u>, bilateral and regional "free" trade treaties to lower standards and eliminate tariffs for industrially produced meat products, thereby wiping out small, independent and more sustainable systems of livestock farming.

Tier 1 inventories calculate emissions based i.e. kg of methane produced per animal per year (methane or some other emission factor). These factors are assumed to remain constant over time thus do not allow for reporting changes in emissions intensity. In contrast, Tier 2 inventories calculate emissions based on the amount of methane produced per kg of dry matter <u>"or per kilojoule of gross energy consumed."</u> To paraphrase: The assumption is that the more efficiently an animal turns feed into muscle or milk, the less intensely it emits emissions.



9 March, 2016

Livestock Debate – it's a wrap (for now!)

Conclusion by Hannes Lorenzen, Dr. Oliver Moore, Samuel Féret

In this series, our authors and readers have approached the livestock debate from many perspectives – climate, animal ethics, economic and more.



photo by Unsplash

Wrapping up this first debate is an attempt to draw elements of a roadmap of how we could change our relation to livestock and raise farm animals in a way that supports the soil, circulates nutrients, treats animals well, balances people and planetary needs holistically, all with a view to helping farming and food become genuinely sustainable. No small feat! The debate is of course not closed. Upcoming debates on <u>ARC2020</u> will relate to what we have raised as challenges and possible solutions and it will allow our partners and readers to move on in their reflections and actions.

But let's draw some commonalities together:



1: The system is broken



photo by <u>Jai79</u>

It has long being argued and assumed by many who think about the agri-food system that livestock in general and meat in particular is unsustainable: that meat-as-is contributes to excessively unhealthy diets, obesity, insufficient diets for the poor and environmental damage for all.

Much of this terrain we outlined in our <u>opening gambit</u>. Indeed all contributors were united in thinking that when it comes to livestock, business as usual isn't working.

As <u>IPES Food's</u> contributors put it – "the current rates of meat consumption in wealthy countries – particularly red meat – are unsustainable under any circumstances.....industrial feedlot production yields too many negative outcomes on too many fronts to be justifiable".

The IATP made these viscerally clear – the horrors of industrial meat really <u>are manifold</u> as Ben Lilliston exposed. While this model of production is now global, the U.S. experience exposes many of its often unspoken consequences, including the suffering of rural communities, public health, the environment and animal welfare. The concentration of hog farms, and associated manure lagoons, in largely minority communities have caused environmental and health problems. International <u>human rights violations</u> have been alleged associated with the dangerous work, poor treatment, of U.S. meat and poultry workers, and exploitation of the for-profit prison system. As the meat industry scrambles to inoculate massive confinement facilities from diseases like avian flu or the piglet virus– there seems to be little consideration that the model itself is badly broken.



2: There is an ethical dimension to this broken food system



photo by <u>Alexas_Fotos</u>

Hence the debate also raised questions about the ethics of our relation with livestock, regarding the treatment of animals and justice regarding people who cannot afford the western meat based diet. *Frank Armstrong* <u>contributed</u> a key message: that humanity requires a revolution in food production as seismic as any before: radically shifting from the obsolete models of livestock-agriculture and fossil fuel-agriculture to a plant based diet. This would mean reconciling humans with Nature through plant-oriented production, improved crop rotation, integrated food production within cities and would need to drastically expand our range of cultivated crops. He also speaks to the violence implicit in eating meat and <u>evolutionary progress</u> towards a world of less suffering for all sentient beings.

His contribution highlights that our slaughter methods deny the cooperation that is at the heart of all ecosystems. As a species we can embrace the spirit of cooperation by avoiding the unnecessary killing of more than fifty billion animals each year. In order to avoid the overall negative consequences of industrial farming systems which he sees also as a key source of conflicts between humans in need of food Armstrong suggests a simple formula: eat plants not animals.



3: Livestock for soil regeneration may be (part of) the solution



photo by tookapic

While many argue that dietary change encompassing less meat – or perhaps no meat or even no animal products at all – is essential for the planet's socio-environmental well-being, an alternative view has emerged. This view also considers the carbon building potential of livestock in soil, while also looking more broadly at a sustainable agri-food and dietary sustainability.

This position does not defend the current industrial agri-food system, but does promote ways in which livestock can be – and in some cases is – more sustainable in various parts of the world, seen in the broader environmental, economic, social and political sense, but all the while <u>regenerative</u>.

Putting the carbon back into the soil, the slogan of the regenerative farming movement in the US might not reconcile those who have decided to become ethics-driven vegetarians with people eating meat, but the relation to livestock in terms of its role for a paradigm shift in the food system seems to be promising.

So how could it be done differently? The impetus for this overall livestock debate we've run has in fact been the emergence of regenerative agriculture. This movement prioritises soil carbon building through livestock, as does the permanent grassland movement in the EU. In these scenarios, outlined by both <u>Sheldon Frith</u> and <u>Miles King</u> we learn more about the potential for this approach. So could producing lamb and beef – currently poor performers in GHG terms, compared to dairy, chicken and pork – actually lead to massive storage of carbon? Soils, mostly under grassland, are the UK's second largest carbon store, after peatlands, argues Miles King cogently. And Sheldon Frith points to some early promising research on carbon storage in soil using regenerative mob grazing techniques.



However, the capacity for grasslands to store carbon depends on a number of things, including how they are managed. Indeed, they can also release GHGs – <u>simply put</u>, there are lots of opportunities for carbon storage, and lots of threats for GHG release.

And yet, very little research has been done into carbon storage and sequestration in grasslands. However as Ben Lilliston <u>has uncovered</u>, in the US a government <u>report</u> concluded that corn and soy-fed ruminants raised in confined systems produce many times more methane than livestock which is grazed and that emissions decrease when shifting the feed of dairy cows from silage and grain toward more grass.

4: There's more to sustainable food than carbon



photo by Foto-Rabe

In addition to carbon storage, the multiple benefits of a more diversified farming approach, which includes animal production as part of an <u>agroecological system</u>, are becoming increasingly evident. As IPES food emphasise, the more livestock farming is reintegrated into landscapes, the more sustainable it becomes. In this, they echo <u>Sheldon Firth</u>'s points on the multiple benefits of holistic grazing.

They cite the examples of <u>mixed crop-livestock systems delivering resource efficiencies</u> and the variability of feed conversion ratios which can in fact show mixed, outdoor grass systems as preferable.

Integrated systems have multiplier positive effects: "the more holistically the environmental footprint is considered, the better the mixed systems fare."

Indeed the sustainable, mixed approach as outlined by Olivier De Schutter, Hans Herren and Emile Frison could be a buffer against another problem – the carbon reductionist, ramping up production approach Shefali Sharma (of IATP) is concerned with. Governments and big lobbies are looking for ways to carry on with destructive business as usual while formally reducing CO₂ emissions.





This is not to downplay the problem – total emissions from global livestock represent 14.5 percent of all anthropogenic GHG emissions (FAO); and as Sharma notes, citing a <u>Chartham House report</u>: "If meat and dairy consumption continues to rise at current rates, the agricultural sector alone will soak up 20 of the 23 GtCO2e yearly limit in 2050, leaving just 3 GtCO2e for the rest of the global economy".

However a huge focus seems to be not on overall GHG reductions but, rather, on reducing the GHG intensity of the system as is: As Sharma put it: "exacting even more meat and milk from animals than we currently do in the extremely extractive and debilitating industrial animal production model".

Meanwhile, necessary dietary change and holistically sustainable agri-food systems, systems which encompass climate change and many other important considerations too, are backgrounded.

Nevertheless, it's worth heeding some warnings: there is a real difficulty and many issues with <u>measuring soil</u> <u>carbon</u> accurately, especially when they lead to carbon offset markets: "such offset projects are not appropriate for small scale farmers and serve project developers more than participating farmers" <u>as Ben Lilliston</u> <u>warns</u>.

IPES Food authors also, while welcoming regenerative agriculture's potential, emphasise that the world is very different to <u>the time of the megafauna</u>: "the promises of regenerative livestock farming must not become the latest chapter of the fairytale which says that climate change can be mitigated without major lifestyle changes."



photo by pascaldelbrayelle



5: Wrapping up the wrap up



photo by FraukeFeind

To conclude, let's not conclude. Let's learn from each other's positions. Let's work to improve how farming and food and rural policies operate. The contours of a better agri-food system are emerging.

The notion that subsidies <u>should simply be dropped</u> is simplistic: we need better policies to deliver public goods, from biodiversity to vibrant rural areas. <u>We need policies</u> that fully embrace the costs of the current system, and which also, concurrently, supporting change towards sustainable diets.

Unfortunately, we are seeing quite the opposite, after a promising start to the <u>CAP reform process</u> earlier in the decade, by the time it concluded, it was a huge disappointment. <u>Greening</u>, which offered such promise, is delivering very little: regions and Member States are opting for the least green greening choices <u>when</u> given the opportunity; more so called simplification is coming down the line and the <u>dairy sector is failing</u> farmers. Indeed this CAP period – 2014-2020 sees <u>1 billion less for ecologically-friendly farming</u> and a Commissioner hell-bent on a market ideology <u>in spite of all evidence</u>, while eviscerating what's green in greening.

So on the ground, in the end, having had this <u>#LivestockDebate</u> what do we want? There is a strong case to be made for mixed farms using <u>agroecological</u> methods, embedded into and engaged with their surroundings and the people who eat from it. We need to get back to farms and a food system which is all inclusive. A good balance between organic soil building, plant production, and livestock – both animal health and land carrying capacity – is important. And people in places matter – farmers are both land custodians and experts with crucial knowledge; consumers can be agri-food citizens, engaged with the who, what, how and why of the food they eat. So let's embrace a healthy, holistic, broad and sustainable agri-food system with positive effects on employment, climate, the environment, rural development and so many other areas.



In certain contexts, regenerative agriculture, with its focus on livestock may work well; in other contexts, a more plant based agriculture may be optiminal.

However as <u>IPES food</u> put it succinctly: "whether or not livestock production is environmentally viable depends on the extent to which it is integrated into ecosystems, landscapes, farming systems and livelihood activities."

So let's carry on this and other related discussions and let's make policy recommendations based on our interactions – it's what ARC2020 is for.



photo by <u>beahohl</u>

#LivestockDebate www.arc2020.eu

Contributors

Olivier De Schutter



Olivier De Schutter is co-chair of IPES-Food. He served as UN Special Rapporteur on the right to food from May 2008 until May 2014 and was elected to the UN Committee on Economic, Social and Cultural Rights in 2014.

Emile Frison



Emile Frison is an expert on conservation and agricultural biodiversity who has headed global research-for-development organisation Bioversity International for ten years.

Hans Herren



Hans Herren is a World Food Prize (1995) and Right Livelihood Award (2013) Laureate, and has managed international agriculture and bio-science research organizations as well as playing a leading role in global scientific assessments.



Ben Lilliston



<u>Ben Lilliston</u> has a Bachelor of Philosophy degree from University of Miami (Ohio). He previously served as IATP's Communications Director and Vice President for Programs. He has worked as a researcher, writer and editor at a number of organizations including the Center for Study of Responsive Law, the Corporate Crime Reporter, Multinational Monitor, Cancer Prevention Coalition and Sustain. He's a frequently published writer, most recently as a contributor to Mandate for Change (Lexington), and previously as the co-author of the book Genetically Engineered Foods: A Guide for Consumers (Avalon).

Shefali Sharma



Over the last decade, Shefali' Sharma's work has focused on international trade and financial institutions, and international food and agriculture policies, with a particular interest and focus on India and South Asia. She has published several reports and articles on the WTO, the Agreement on Agriculture, bilateral free trade agreements and the impacts of free trade rules on developing countries from a social justice perspective. She has worked in Delhi as the South Asia coordinator for the Bank Information Center, and also recently served as senior researcher for Third World Network in Delhi. Shefali has a Bachelor of Arts in anthropology from the College of William and Mary and a master'[®] in philosophy in development studies from the Institute of Development Studies in Sussex.

Sheldon Frith



Sheldon grew up on the edge of the Amazon rainforest in Brazil. The destructive deforestation he witnessed as a child left him with a deep passion for environmental restoration. After years of searching, Sheldon discovered Holistic Management and realized immediately that this was the answer he had been looking for. Sheldon currently lives in Canada. In the winter he writes about regenerative agriculture on his blog, sheldonfrith.com, and in the summer he works on various regenerative farms around Canada. Sheldon is currently writing a book about regenerative livestock, and he is also working to establish a rewilding research site in Canada called "Rewild The North".







Miles King is chief executive of charity People Need Nature, which promotes the value and need for nature in people's lives. Miles has worked in nature conservation for 30 years, leading the conservation work at Plantlife, The Grasslands Trust and Buglife. He is the co-author of "Arable Plants: a field guide" and "The Nature of God's Acre". Miles writes about nature and society at www.anewnatureblog.wordpress.com

Frank Armstrong



Frank Armstrong is an Irish writer and teacher currently residing in the Czech Republic. He has written on a diverse range of subjects including history, the politics of food and literature for a variety of publications in the UK and Ireland. At present he teaches law in Anglo-American University in Prague and previously taught in University College Dublin and St. Clare's Oxford. He is the author of 'Beef with potatoes: food, agriculture and sustainability in modern Ireland' from the Proceedings of the Royal Irish Academy (2015).

Oliver Moore



Graduated with his PhD in November 2007 having studied the sociology of buying and selling of organic fresh fruits and vegetables at farmers' markets in Ireland. Is published in academic journals and books, including the International Journal of Consumer Studies and the book Belongings (from the sociological chronicles series). Communications Manager and EU Correspondent with ARC2020.eu, a platform of 150+ NGOs campaigning for better food, farming, environment and rural policies in Europe.



About us

Initially set up as a multi-NGOs platform to influence the reform of the European Union's Common Agricultural Policy (CAP) between 2010 and 2013, the Agricultural and Rural Convention (ARC2020) is now itself an NGO. After a period of alliance-building and campaigning with several European NGOs and farmers networks on CAP reform, ARC2020 focuses on vision building, offering a space to regenerate public debate in Europe, while also drawing the public's attention to both controversies and narratives on future farming, food and rural policies.

Through its website www.arc2020.eu ARC2020 offers a platform of debate and communication in four areas :

1) information on to food, farming and rural development policy, with a special emphasis on CAP implementation across the EU via CAPWatch

2) advocacy focused on EU policy makers in the areas of farming, food and trade-related issues such as TTIP etc.

3) promoting agroecological food and farming systems solutions, including climate and regenerative farming methods

4) influencing the next food and farming policy framework of the EU towards 2020.



Luxembourg Action photo by Sven Becker



Agricultural and Rural Convention – ARC2020 38, rue SaintSabin 75011 Paris FRANCE www.arc2020.eu communication@arc2020.eu

