Call for Expert Evidence Response

Climate Action Plan 2023

Department of the Environment, Climate and Communications

NATURAL WORLD PRODUCTS

Natural World Products

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Introduction

Natural World Products Ltd (NWP) is the largest recycler of organic waste streams on the island of Ireland, currently managing c.330,000 tonnes per annum and recycling around 80,000 tonnes of municipal organics (brown bin waste) from the Republic of Ireland annually.

In our capacity as the most experienced Irish operator recycling large volumes of organic waste, we welcome this opportunity to provide expert evidence to inform Ireland's Climate Action Plan 2023.

Operating from state-of-the-art In-Vessel Composting and Recycling Facilities on the outskirts of Belfast and in Keady, Co Armagh, we also operate and work in partnership with waste transfer facilities across the island and have been in long-term contractual arrangements with some of the largest waste collection companies in the Republic of Ireland for a number of years at this point.

Counting every council in Northern Ireland as a customer, in addition to those large private companies in the Republic of Ireland, our services and infrastructure play a critical role in enabling effective, and genuinely circular, recycling to occur successfully on the island at present. In Northern Ireland, where the effective recycling of household organics is much more advanced and embedded than in the Republic, NWP is directly responsible for recycling over 50% of all Local Authority Collected Municipal Waste – that "waste" coming specifically from co-mingled food and garden waste, kerbside collections via brown bins and green waste (garden waste only) from Local Authority managed Recycling Centres.

With recycled product (peat-free compost and organic soil conditioners) flowing back in the tens of thousands of tonnes to the economically crucial agri-growing and horticultural sectors, as well as local communities and the voluntary sector, NWP is a tangible Irish example of a local circular economy already operating highly successfully and making a positive ESG and carbon contribution on the island.

Transport

Open

1. What other opportunities exist to support the decarbonisation of the Transport sector?

Natural World Products response

As the transport sector moves to electrification, it is clear that this is unlikely to be suitable for long haul or heavy goods vehicles, certainly within the short to medium term.

The use of biomethane in certain vehicles would appear to be an ideal fit for sections of the transport sector with hydrogen significant time away from viable widespread deployment as a viable alternative to traditional fuels.

However, when considering how biomethane is to be produced via Anaerobic Digestion (AD), government must be highly cognisant of the proposed treatment and end destinations being put forward for liquid digestate – which, when not managed appropriately, can cause multiple problems. It is also important to be very realistic about the volumes of both available feedstocks and the levels of biomethane that can be feasibly produced from organic waste material.

Despite being the largest reprocessor of discarded household organics in Ireland for many years, NWP has been consistently nervous about investing heavily in AD technology (even where massive government subsidies have been present previously that have completely distorted waste management markets) – such are the concerns we have around the safe and manageable disposal of large volumes of, especially, liquid digestate.

In many parts of the UK, including Northern Ireland, this has caused significant problems in nutrient-sensitive soils and waterways and is an often hidden and 'inconvenient truth' around AD technology. Furthermore, in the Republic of Ireland, there have already been some fairly spectacular examples of millions of Euro been wasted on high-profile, incorrectly conceived AD plants that have caused more harm than good – and that were simply never going to work for the feedstocks for which they were theoretically intended to be used (including one plant in Donegal that ended up, somewhat ironically, costing the Northern Ireland taxpayer millions of pounds in written-off loans from Invest Northern Ireland).

Ireland is a wet region that is extremely sensitive to the levels of highly concentrated nutrients this type of waste treatment produces.

Despite slick lobbies driven by off-shore finance houses, government in Ireland needs to be very realistic about what is actually possible or desirable in Ireland through Anaerobic Digestion. AD is also often cited as a potential "solution" for excess silage and animal manures. However, this is not realistic. In trying to use AD as a "solution" for silage and manures (or, worse, growing crops to simply push them in to an AD plant) farmers would need almost twice as much land space to then dispose safely of high nutrient concentrate liquid digestate – that can cause far greater problems in soils and waterways over time.

The Irish Government need only speak to their counterparts in Northern Ireland (Agri-Food and Bioscience Institute and the Department of Agriculture, Environment and Rural Affairs) to gain the benefit of their experience around AD in the past decade as a result of overly lucrative subsidy schemes historically offered in Northern Ireland.

All of those have now ceased – and for very good reason, given the unintended consequences and damage they caused across multiple other policy areas.

Agriculture, Land Use and Forestry

1. What are the opportunities to increase take-up of measures identified in AgClimatise and encourage adoption of other practices which reduce emissions?

Natural World Products response

There are numerous opportunities to increase take-up of measures identified in AgClimatise:

- Sustainable farming practices should be quantified and rewarded
- The introduction of a renewable fertiliser obligation
- On-going measurement and management of organic matter and nutrient levels in soils – with farmers rewarded based on sustainable land management practices and economically encouraged to transition from animal-based farming practices

2. What policies and measures would be needed to support farmers diversify their farm activities to include opportunities such as bioenergy, vegetable growth, forestry, organic farming, etc.?

Natural World Products response

It is clear that prompt action must be taken to encourage farmers to move away from methane-intensive farming practices.

Regenerative agricultural practices should be supported and one of the best ways is to encourage farmers to manage soils with cover crops, encourage changes in farming practices and the addition of high quality compost/soil conditioner.

Across the world, there is new generation of 'carbon farmers' that are intentionally minimising soil cultivation and disturbance in order to prevent the release of CO_2. In addition to applying organic compost, planting crops such as grasses and cereals is pulling in more carbon which over time is sequestered in the earth.

By certifying the amount of stored carbon, landowners can then sell these as credits to corporations wishing to offset their emissions.

Such practices require 'out of the box' thinking but clearly could have a major impact in a place such as Ireland where we know carbon neutrality will be a real challenge due to our heavy reliance on a traditionally methane-centred agri sector.

Farmers should be encouraged to trade carbon credits and this should be done on a farm by farm basis in which soil samples are taken to independently show increases in carbon sequestration in soil.

Case examples:

- **Humus Projekt, Austria**

An example of this is in Austria where the 'Humus Projekt' is enabling participating farmers to sell so called 'soil carbon credits' equivalent to the amount of carbon they have additionally stored in their soil during project participation.

Companies wishing to reduce their carbon footprint can then purchase these carbon credits. Started as a local initiative in 2007, the scheme now involves more than 100 farmers throughout the country. The Austrian retailer Hofer AG (part of Aldi) is the main buyer of credits.

When a farmer starts participating in the project, a baseline measurement is carried out of the stable organic matter (humus) in his soil. They then start working on storing additional organic matter, e.g. by applying organic soil improvers, planting green cover, reduced tillage etc. An important role is for an initial high compost dosage of 100-200 tonnes/ha: it is claimed that this high dose kickstarts/resets microbiological soil life and helps the further rapid build up of soil organic matter.

After two to five years a second measurement of soil organic matter is carried out. The additional soil organic matter stored during the first 2-5 project years is calculated and converted

to a corresponding amount of CO_2. The farmer then receives a payment of carbon credits equivalent to 60% of this amount of CO_2.

Five years later another (third) measurement of soil organic matter is undertaken. If the content is at least equal to the quantity during the second measurement, the farmer receives a second payment corresponding to the remaining 40% of the credit value.

The carbon credit price is € 45-/tonne, of which €30,- is for the farmer and € 15,- for the scheme management. Costs for soil sampling and soil analyses, as well as coaching of farmers throughout the project is included in scheme management costs.

The relatively high carbon credit price is acceptable to buyers because of the credible layout of the scheme, and the local context, ie the carbon is in local soil rather than trees in Brazil.

- **Marin Carbon Project**

In response to the rapid pace of global climate change, the Marin Carbon Project (MCP) seeks to enhance carbon sequestration in rangeland, agricultural, and forest soils through applied research, demonstration and implementation in Marin County, California.

From the original three demonstration farms, MCP has supported the creation of 12 full carbon farm plans covering 9,054 acres. Four more ranches were selected for plans in the fall of 2017, with the goal of completing and supporting 20 ranches in practice implementation by 2020. Over 20 years, the potential carbon reduction associated with these plans is 123,679 $MTCO_2$.

- **Australia**

In Australia, Niels Olsen became the first farmer in the world to be paid for sequestering carbon in a regulated government run carbon credit scheme. A case study is available here - Regenerative agriculture case study: Olsen's Hallora - Soils For Life

3. What can be done to maximise the use of manure and silage as feedstock for biomethane generation in closed digesters and inject into the gas grid to offset natural gas?

Efforts to encourage the use of manure and silages as feedstock for biomethane generation in closed digesters should be avoided rather than maximised.

Quite simply, we need to find ways to farm fewer animals and transition to a less methane-intense agri-sector rather than scrambling to concoct and fund ill-conceived 'solutions' that result in creating new problems elsewhere.

We must encourage more arable growing and help farmers to return and restore lands to nature and increase biodiversity.

Doing this will provide a far better way to improve food security, capture carbon sustainably and set Ireland towards reducing carbon emissions for the longer term.

Rather than the panacea that it is so often lauded as being, AD is far from a viable solution to reducing emissions or solving the problems caused by manures and silage (due to the serious issues in managing high volumes of, especially, liquid digestate).

In a Northern Ireland context, there has been historically misguided (if well-intentioned) government subsidisation of economically and technically inviable technologies for the treatment of highly variable municipal waste streams.

This is now causing multiple problems in our nitrogen-vulnerable soils (not to mention waterways and sewer systems) due to the extremely high concentration of nutrients contained in the liquid outputs their biological processes produce.

Encouraging the burning of gas of any type, where the production of heat and other greenhouse gases remains inevitable - even where it is ostensibly to "reduce the need for fossil fuels", is not sensible, especially when the cost of producing a relatively small amount of renewable energy via AD is factored in and compared to other ways of producing infinitely greater and more cost-effective forms of renewable power (e.g. off-shore wind).

A broader and more complex view of the differing sustainability problems faced is required looking forward so the appropriate technologies and practices can be supported in the right areas, with specific practically obtainable goals in mind.

7. What opportunities exist for increased use of cover crops, incorporating straw into tillage and for the application of regenerative agriculture practices? How can farmers be supported to take up these practices?

There are significant opportunities for the increased use of cover crops along with the adoption of new practice such as minimum tillage. However, farmers should not be supported or encouraged to incorporate straw into tillage land.

The carbon in straw is not stable and when added to the soil it then starts a process of decomposing, using up available nitrogen in the earth in the process – nitrogen which otherwise could be used by plants for growth.

An alternative use for straw and the superior practice to return it to soil is to let the straw be baled and then used by farmers to bed farm animal or feed animals. Once composted, the bedding manure would have a stable carbon content and could then be applied to the earth, promoting better soil health and carbon sequestration.

Providing financial incentive will be key. Overall, if farmers were paid for sequestering carbon in a regulated government run carbon credit scheme, this would encourage the use of cover crops.

Further, consideration should be given to incentivising farmers and landowners to apply organic compost and soil conditioner to the earth to enable carbon sequestration, the return of organic matter to heavily farmed soils and overall improvements in soil health – a truly regenerative agriculture practice.

9. What other opportunities exist to support the decarbonisation of the agriculture, land-use and marine sectors?

The decarbonisation of the agriculture, land-use and marine sectors is a massive challenge that cannot be met without embarking on a radical programme of change.

Ireland simply must transition from the current, frankly unsustainable farming practices, that have ravaged the health of our soils over countless generations of intensive farming and continue to contribute a significant portion of the island's carbon emissions.

However uncomfortable and inconvenient it may be – the radical programme of change should include financial incentives for farmers, paid through a regulated and government run scheme, to encourage some of the more climate-desirable practices.

This could include a carbon credit scheme (similar to examples outlined in our response to question 2 of 'Agriculture, Land Use and Forestry') or the subsidisation of organic compost/soil conditioner.

Waste and the Circular Economy

1. What are the main barriers to consumers embracing the Circular Economy, e.g. lack of awareness, increased costs compared to disposable products, lack of access to circular goods and services?

Natural World Products response

In the Republic of Ireland, as in Northern Ireland, there is a lack of education around the benefits, both environmental and economic, of truly effective organic waste recycling and its potential to fuel a genuinely local circular economy.

At the most basic level, everyone needs to be provided with a biowaste collection service, covering both food and garden waste.

Food waste collections have been mandatory in Northern Ireland since April 2017 which immediately contributed to a 5-percentage point increase in composting and recycling rates between Q4 2016 and Q4 2017[1].

From our experience in Northern Ireland, where we process around 300,000 tonnes of organic waste a year on behalf every local authority in the region, the collection of co-mingled garden and food waste in brown bins has worked incredibly successfully.

In Northern Ireland, council areas which collect food and garden waste on a comingled basis realise overall organic recycling yields that are 4-5 times higher than those council areas that collect food waste separately from garden waste.

Collecting organic waste that mixes garden and food material together doesn't just result in greater volumes being diverted from landfill, it is also required to make high-quality compost, thereby providing a viable and sustainable replacement for peat-based growing media in horticulture – on top of the soil health benefits when high quality, properly recycled organic soil conditioner is applied to agricultural soils.

The national food waste recycling campaign needs to continue for at least five years so households can be educated.

Educational and PR campaigns informing householders on how food and garden waste can be used to fuel the circular economy and reduce carbon emissions through subsequent Carbon Sequestration in soils is imperative to win their buy-in.

For example, highlighting that one tonne of organic compost applied to soil keeps the equivalent of 375kgs of CO2 out of the atmosphere – and that figure is closer to 900kgs when it is used as a replacement for peat – can greatly increase awareness, by playing into the public consciousness around climate change and the need to reduce carbon emissions.

1 Food waste 'boost' to Northern Ireland's recycling rate

In the Republic of Ireland, we are already working with our partners including some of the country's largest private collectors to raise awareness of this very issue in a bid to encourage greater compliance among householders in terms of disposing of waste appropriately in their brown bins.

In Northern Ireland, an understanding that food waste collected by the municipal authority flows back into that council area through the provision of high-quality peat-free organic compost (e.g. to parks, greenways, men's sheds, allotments, golf courses etc) has a significant influence on recycling rates.

Education or PR campaigns around food and garden waste in relation to the circular economy should include a focus on how organic compost produced from food waste can contribute to Soil Health through returning organic matter to heavily farmed soils and, now more than ever, the Carbon Sequestration benefits of organic compost. Soils are the second biggest store of carbon available to us after the oceans.

For example, food waste, when converted to high quality organic compost can positively contribute to key environmental challenges faced by Ireland through:

- Locking carbon up in soils;
- Returning organic matter to soils that have been heavily farmed over many years, thereby stripping them of their natural nutrient and organic matter base

So, not only would be better ensuring diversion of waste from incineration and landfill, we would be contributing to the protection and sustainability of peatlands and assisting the return of organic matter to heavily farmed soils.

2. What other opportunities exist to support decarbonisation through the acceleration of a transition to the circular economy?

Natural World Products response

A number of opportunities exist, as there is a lot more food and garden waste that could be source separated in Ireland.

A national communications campaign that would take place every year is needed to educate people on how to effectively recycle food and garden waste and all the benefits associated with this. Processing capacity exists on the island – we don't even need additional plants – we just need to ensure high quality, clean feedstocks are available for the ones that already exist.

The final compost and digestate products can be used beneficially helping to decarbonise the sector and serving as an example of local processing in the circular economy in Ireland.