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Horticulture and Plant Health Division
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Our ref: EPAC-2722

05 December 2022

Re: Horticulture Strategy consultation

Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil

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Dear Sir/Madam

The Environmental Protection Agency (EPA) welcomes the opportunity to provide observations on the development of a national Horticulture Strategy by the Department of Agriculture, Food and the Marine. We note that the Strategy will contribute to the aims of Food Vision 2030, for Ireland to become a world leader in sustainable food systems over the next decade. Our general observations are set out in this letter, while specific comments on the "Opportunities for the Irish Horticultural Sector" report are included in Appendix 1.

Peat Extraction

The use of peat and peat-based growing systems within Ireland's horticulture sector urgently needs to be addressed as a key priority for the sector. It is likely that much of the peat used in Ireland in the horticultural sector has been extracted illegally from peatlands that do not have planning permission and/or an EPA licence. The EPA is taking several prosecutions against multiple operators for the illegal extraction of peat. If the horticulture sector is to promote a green sustainable image, the sector must cease the use of illegally extracted peat.

The main impacts on water quality and river habitat arising from peat extraction and drainage include the release of ammonium and fine-grained suspended sediments, and physical alteration of aquatic habitats. The installation of drainage channels results in a lowering of the water table which disrupts the peatlands ecosystem balance as well as providing flow pathways for sediment and dissolved organic carbon to reach water bodies. The most recent River Basin Management Plan reported that 106 waterbodies where peat was identified as a significant pressure were classified as at risk. This is evidence of the impact that the extraction of peat has on water quality.

The extraction of peat also has a significant impact on greenhouse gas emissions. The EPA has calculated that the extraction of peat that is exported was responsible for the release of approximately 1 million tonnes of carbon dioxide equivalent in 2020 alone.

It is important to note that the majority of peat extracted in Ireland is not currently used in the domestic market but rather is exported, with 919,000 tonnes of peat exported to 35 countries in 2020 according to the CSO.

The proposed exploration of approaches to sustainably use domestic peat supplies in the short term is noted. This action needs further consideration in the context of the domestic cessation of peat harvesting and the overall environmental sustainability of the sector. We recommend that the proposal to undertake research on alternative growing media in the medium to long term be prioritised and progressed in the short term. This action could be pursued under the proposed research and development initiatives.

Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA)

The requirements of the SEA and Habitats Directive should be taken into account in preparing the Strategy. The Strategy should be screened in the first instance with respect to the requirement for SEA and AA. A determination should be made on the potential for likely significant effects of the Strategy on the environment, in consultation with the relevant statutory environmental authorities as appropriate. The range of Actions proposed in the consultation report could be used for SEA screening purposes.

Where SEA is determined to be required, consultation should be undertaken with the statutory environmental authorities at the scoping and draft Strategy/ Environmental Report stages. Provisions should also be made for consultation with the wider public at the relevant stages in the process.

Soils Strategy

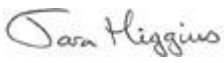
The Strategy should take into account the relevant medium and long-term Objectives and Actions set out in the EU Soils Strategy for 2030.

Sustainability

The proposed development of 'Horto-Metrics' as a common measure to understand and communicate the horticulture sector's environmental impact is an important initiative. This action could be delivered in part via a research project. The initiative could be referred to as Horto-Enviro-Metrics to reflect the environmental focus of the metrics. Once developed the metrics could inform the environmental monitoring of the implementation of the Strategy over its lifetime, which is a requirement of the SEA process.

Should you have any queries or require further information, contact us directly at sea@epa.ie.

Yours sincerely



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Tara Higgins
Programme Manager, Office of Evidence and Assessment

Appendix 1

Specific Comments on "Opportunities for the Irish Horticulture Sector"

1. Actions for Cross Cutting Factors

We welcome the inclusion of Climate and Energy (Theme 04) and - Research, development and education (Theme 05) as Underlying Strategic Themes which are addressed through the analysis of the sector's cross cutting factors.

Research and Development

The proposed establishment of a working group to develop a detailed research-needs analysis for the sector as a whole is a welcome development. This has the potential to inform priority research calls for the sector and other organisations.

Representation from relevant horticulture sectors, funding organisations and third level institutes could be considered for the working group. Identification of opportunities for securing funding for R&D could be included within the scope of the working group.

Knowledge Transfer

The proposed reintegration of the horticulture sector into the Agriculture Knowledge and Innovation System (AKIS) is an important action. Similarly, the proposed development of a knowledge transfer programme through continuous professional development (CPD) is a welcome action.

Education and Training

The proposal to develop a graduate training programme, e.g., an MSc in Horticulture, is an important and welcome initiative. This has the potential to promote best practice and inform research and innovation in the horticulture sector, as well as foster links with other Member States and other countries.

Insight & Intelligence

The development of an inventory of soil and site suitability could be complemented by integrating this information in a suitable Geographical Information System.

The feasibility of zoning of land for horticultural use could be considered in consultation with the Regional Assemblies and relevant local authorities with a view to promoting the sustainable development of the sector.

The Strategy could promote postgraduate research in the area of horticulture data with a view to supporting and informing best practice in the sector.

Promotion (including import substitutions)

The development and implementation of levers that can support import substitution and the promotion of Irish-grown produce in terms of the associated environmental benefits (low food miles and Horto-Metrics) and fresh produce/nutrition-based benefits, are welcome actions that should contribute to enhancing the environmental sustainability of the sector.

The development of controlled environmental agriculture (CEA) growing methods along with integrated pest management, has the potential to deliver high-quality produce close to consumers, minimising water, nutrients and chemicals usage. Such a proposed system has the potential to promote resilience in the sector in the context of potential climate change implications.

The use of relevant Horto-*Enviro*-Metrics to demonstrate the sectors environmental impact is a welcome action.

Packaging and Food waste

The recognition of the increasing environmental concerns in relation to single use packaging and the need to move to a more sustainable packaging is welcome. The proposed action to monitor global packaging trends and the identification of solutions for Ireland that minimise food waste, reduce plastic waste and achieve circularity in food systems has the potential to reduce the sector's overall environmental footprint. This will be supported by the proposal to pilot alternative packaging initiatives. The focus should be on moving away from single-use packaging and developing and trialling reusable packaging systems along the supply chain.

The recognition of Irish produce and the associated lower food miles travelled through identifiable packaging and sustainability labelling will contribute positively to the sector's environmental footprint.

The urgency and challenge of addressing food waste is highlighted at international level and EU level through the UN Sustainable Development Goals and the Circular Economy Package. The EU aims to reduce food waste by 50% by 2030. Ireland's Climate Action Plan also includes food waste as a priority waste stream and articulates a 50% reduction. Government Policy supports the UN Sustainable Development Goals and EU ambition to reduce food waste e.g., Climate Action Plan, Waste Action Plan for a Circular Economy, Food Vision 2030. The Government has published a National Food Waste Prevention Roadmap 2023-2025 that sets out an overarching strategy and priority actions for the delivery of Ireland's target of halving food waste by 2030[1].

The EPA estimates that some 70,400 tonnes[2] of food waste was generated at the primary production stage in Ireland in 2020, of which horticulture accounted for the largest share. The main reported causes of food waste at the primary production stage are products falling outside quality specifications and lack of customer demand.

The proposed development of initiatives that support a reduction in food waste, along with supporting food distribution schemes that benefit society, will improve the sector's environmental footprint.

Given that Ireland is required to report to the EU on food waste generated at each stage of the food supply chain from 2020 onwards, it would be useful to include a metric to accurately quantify the extent of food waste at the primary production stage in Ireland as part of the proposed Horto-Metrics. Improving this evidence base could form a priority research area for future R&D projects.

The National Food Waste Prevention Roadmap advocates that every sector should pursue food waste measurement and reporting as part of their operations. To encourage a consistent

[1] https://www.gov.ie/en/publication/824c3-national-food-waste-prevention-roadmap-2023-2025/
[2] https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/food/

approach to food waste measurement in horticulture sector businesses, the EPA measurement protocol should provide the basis for improving data and targeted food waste reduction actions by the sector.
The EPA Food Waste Measurement Protocol[3] has been developed to support food and drink manufacturers to identify and quantify their food waste streams and put in place actions to reduce their food waste. Measurement protocols for other sectors, such as primary production including horticulture, will be considered as part of the Roadmap implementation. For example, the horticulture sector has in place requirements to consider crop losses and food waste as part of a sustainable horticulture assurance scheme26[4].

The EPA is also supporting capacity building in food sector businesses and developing benchmarks against which businesses can assess performance. The EPA also recognises the potential for Origin Green members to facilitate actions to measure and reduce food waste and has been working with Bord Bia to explore approaches for incorporating consistent measurement and targets on food waste reduction.

Understanding the sectors overall impact- Cost- Benefit Analysis (CBA)

In developing the strategy, it should be clarified whether the proposed Cost-Benefit Analysis (CBA) action will include an environmental component.

Circular Bio Economy, smart / precision agriculture & sustainable nutrition

We welcome the recognition of the circular bioeconomy providing market opportunities to grow the sector and support sustainability objectives. It should be clarified whether sustainability objectives have been defined for the sector.

The proposed action to identify key bioeconomy opportunities for the sector are likely to be informed by the work of the proposed working group. The engagement with existing relevant forums and the alignment with key existing policies will be important related actions.

The identification of key precision agriculture technologies (e.g., vertical farming, hydroponics and the Internet of Things applications) and the resourcing of horticultural advisory services to support the adoption of these technologies has the potential to contribute significantly to the environmental sustainability of the sector.

We note the action focusing consumer messaging on horticulture as a holistic component of a sustainable food system (which adds a health/nutrition element to the environmental, economic and social dimensions) that is good for consumers, society and the environment. The proposal to develop the sector's story and an associated toolkit to communicate the story is welcome and has the potential to set the sector in the context of a sustainable food system.

[3] https://www.epa.ie/publications/circular-economy/resources/food-waste-protocol-for-manufacturing-sector.php

[4] https://www.bordbia.ie/globalassets/bordbia.ie/farmers--growers/farmers/qas/document-libraries/shas-pdfs/sustainable-horticulture-assurance-scheme---producer-standard.pdf

2. Sub sector specific and topic specific observations

Mushrooms – Priority Area- Environmental Footprint

We welcome the proposed development of Horti-metrics (Horti-enviro-metrics) as a measure to understand and communicate the mushroom sector's environmental impact. The proposal to benchmark against international best practice examples is noted. This is an approach that has potential application across other horticulture sub sectors also.

The proposed action to invest in research and knowledge transfer with a view to optimising the sectors environmental footprint will contribute towards the development of an environmentally sustainable mushroom industry.

For the priority area *Find Alternatives for peat production systems*, a more focussed "*action to be taken*" could be considered.

The proposal to embed the mushroom sector in the circular economy and circular economy practices is welcome, as is the identification of solutions to minimise food waste in the sector.

Amenity Horticulture

The development of an environmental balancing statement (EBS) across amenity crop models could be aligned with the Horto-*enviro*-metrics as also actioned under the sub-sector addressing mushrooms, as appropriate. Aspects to consider in the EBS include the use of peat, energy, water and pesticides and the associated carbon/energy and water footprints. The proposed action to conduct a life cycle assessment (LCA) of environmental impacts of the amenity sector is welcome. This approach could be adopted for other sub sectors also.

The Actions to achieve reduction of the environmental footprint of this sub-sector – including the investment in research and knowledge transfer, reduction in the use of plastics and associated research, addressing the knowledge gap on Integrated Pest Management – are comprehensive and, once implemented, should contribute towards the development of relevant metrics for the industry.

Use of Pesticides

There is recognition in the sector of the need to reduce chemical pesticide use. As stated in the report, this will require a cross sector shift, taking into account existing dependence on pesticides in the overall horticulture system.

It should be ensured that the use of chemical pesticides in the industry does not impact on the receiving environment including water (surface and groundwater), air and biodiversity. The use of pesticides should be minimised and phased out where feasible. This will necessitate the adoption of crop management and production protocols incorporating Integrated Pest Management.

Invasive Alien Species

Where the import of plants is undertaken within the sector, measures should be in place to ensure the introduction of invasive/ alien species is prevented. In the event that species of concern are released accidentally, immediate efforts should be introduced to ensure their control and eradication using appropriate sustainable measures.

Environmental Management Plan

For producers over a specified size/ output, consideration should be given to the merits of requiring an Environmental Management Plan to be prepared for the operation of the horticulture facility.

This could incorporate aspects such as carbon footprint, water footprint along with relevant associated monitoring, food waste, pesticide use and management. This would be in line with the proposed development of an environmental balancing statement (EBS) and life cycle assessment of environmental impacts across amenity crop models and the proposed Horto-enviro-metrics as also actioned under the section addressing mushrooms. In addition, it could potentially contribute to the development of Horti-metrics with a view to understanding the sector's overall environmental impact.

Energy

With a view to contributing to the reduction of the carbon footprint of the sector and associated subsectors the use of renewable energy should be considered where feasible within the broad horticultural sector.

The dual use of land with Agrivoltaics should be considered in the sector to enable food production and electricity generation on the same area. An upcoming EEA paper on Emerging issues of policy relevance from the European Environment Agency (December 2022) estimates that the use of agrivoltaics increases land use efficiency by 60%.

Relevant Plans and Programmes

Some relevant Plans and Programmes to take into account when preparing the Horticulture Strategy include Food Vision 2030, the National Policy Statement on the Bioeconomy, the River Basin Management Plan and the National Biodiversity Action Plan, the Bioeconomy Action Plan (the latter three in the advanced stages of preparation).

Key Learnings from the international sector

Netherlands:

We note the key learnings/actions from the Dutch horticulture sector including the following:

- The adoption and promotion of sustainable glasshouse production
- Aim to grow the horticulture sector in clusters
- Develop circular agriculture/ bioeconomy to grow the horticulture sector
- Stimulation of the research ecosystem to enable innovation
- Development of a variety of funding options to encourage innovative technologies

The initiatives such as *all glasshouses required to be climate neutral*, the *designation of Greenports* which provide a clustering of intensive horticulture production and related industry and the development of *experimental lighthouse farms* to build knowledge and help prepare for the global shift to a circular agriculture economy have potential for application in an Irish context.

In addition, the concept of *Food Valley*, as supported by Wageningen University, a knowledge intensive agri-food ecosystem which drives sector innovations such as water and waste recycling, glasshouses which produce more energy than they consume and robotic fruit pickers, could contribute positively to the horticulture sector in Ireland.

We recommend that the proposed Strategy should set out a Road map for the implementation of the relevant components of these initiatives along with proposed measures to secure funding where required.

New Zealand

Relevant aspects from the New Zealand's experience include:

- A key R&D organisation in the agriculture sector is leading the way in examining the impact and use of Artificial Intelligence to address challenges such as environmental sustainability and climate change. The use of proximal sensing and remote sensing in horticulture practices is the current focus of this organisation's research strategy. Ireland would benefit in this regard from Government support for research and development. The proposed integration of horticulture back into the broader Agriculture Knowledge and Innovation System (AKIS) is a welcome related action for Ireland.
- The setting up by New Zealand's government of a Sustainable Food and Fibre Futures fund, available for feasibility studies and research, is a potentially useful model for Ireland. The project is focussed on crop protection practices through the use of biopesticides and biological controls to protect crops and create a more sustainable and desirable source of food. The proposed Action for Ireland involves the establishment of a working group to develop detailed research needs with a view to informing research calls by key funders. This will be an important initiative for the Irish horticulture sector going forward.