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| Searching for a Coordinator/Partner for | **The Green Deal – Farm to Fork** |
| Topic | **LC-GD-6-1-2020:** **Testing and demonstrating systemic innovations in support of the Farm-to-Fork Strategy** |
| Subtopic | Subtopic A.         Achieving climate neutral farms by reducing GHG emissions and by increasing farm-based carbon sequestration and storage. Subtopic B.         Achieving climate neutral food businesses by mitigating climate change, reducing energy use and increasing energy efficiency in processing, distribution, conservation and preparation of food. Subtopic C.         Reducing the dependence on hazardous pesticides; reducing the use and increasing the efficiency of fertilisers; reducing the losses of nutrients from fertilisers, towards zero pollution of water, soil and air. Subtopic D.         Reducing the dependence on the use of antimicrobials in animal production and in aquaculture.Subtopic E. Reducing food losses and waste at every stage of the food chain including consumption, while also avoiding unsustainable packaging.Subtopic F. Shifting to sustainable healthy diets117, sourced from land, inland water and sea, and accessible to all EU citizens, including the most deprived and vulnerable groups. |
| Organisation Details | Donegal Hydro Harvesting is a start-up company based in Donegal in the north of Ireland. They have a pilot project called Inishowen Algae- an algae farm on an 8,000 square metre site demonstrating a closed loop, self- harvesting, software managed system for the growth of freshwater algae. It shows algae as a carbon neutral bio-mass that grows in the environmental and marginal land conditions of Northern Europe with minimum labour input. Through demonstrating algae cultivation on marginal land, the Inishowen Algae project is growing understanding on the return on investment for farmers in the following market segments:1. Algae used as a biomass in a micro-biodigester to produce carbon negative heat and electricity
2. Algae to produce a biofuel
3. Algae as a source of soil rejuvenation
4. Algae to produce animal and aquatic feed
5. Algae as food or food additive for human consumption
6. Algae as fertiliser
7. Algae in the production of bio plastic
8. Algae as a supply in the production of pharmaceuticals

The algae in the Inishowen Algae project is grown in brackish water in polythene tubes that sit on top of the land. Pumps are used to pump water around the tubes and the algae grows suspended in the water inside the tube. Once grown, the algae is automatically harvested into tanks. The system is powered by solar panels so does not need mains electricity. The farm is automated through sensors and pumps which are connected to a remote software managed alert system.  |
| How we can contribute to this topic | The Inishowen Algae project can provide tangible and visible results to a consortium investigating innovative practices in agriculture. Donegal Hydro Harvesting can bring value to a consortium through, for example, designing a self-harvesting algae farm and/or the cultivation of economically viable algae for use in a project. Through algae cultivated in specifically designed algae farms, Donegal Hydro Harvesting can contribute to consortium working in subtopics in the following ways: Subtopic A. Carbon sequestration and storageThe algae cultivated in the Inishowen Algae farm captures carbon. We would contribute to a topic on carbon sequestration through investigating the carbon capture and sequestration and storage by:* converting the cultivated algae into a biochar and sequestering it into the soil.
* Filtering the carbon dioxide from the biogas that is generated when algae is fed into a micro bio-digester and feeding the carbon dioxide to the algae being cultivated.

Subtopic BClimate neutral food businessWe could contribute to a topic on carbon neutral food business through suggesting how using electricity and heat produced from cultivated algae fed into a biodigester, can be used in processing, conservation, and preparation of food. Subtopic CReducing damage from fertiliserAlgae can be used as a method of improving the traditional fertilisers used. The Inishowen Algae project could be used to investigate combining algae and animal manure, from livestock farms, in a biodigester the resulting digestate is a fertiliser with higher nutrient qualities than undigested manure (slurry) to spread on land. Subtopic DReducing use of antimicrobialsThe antimicrobial properties of algae in animal fodder is an area of research in the Inishowen Algae project. Subtopic EFood packaging. The processing and use of algae as a bio-plastic is an area of research in the Inishowen Algae project. Subtopic FInishowen is disadvantaged area when considered on a national Relative Deprivation Score. Through cultivating algae on marginal non arable land we can increase access to local, sustainable and healthy food production in a number of ways: 1. Algae can be used as a soil structure to rejuvenate the microbes in the structure of the soil in this area.
2. Algae can generate green heat and electricity to power greenhouses growing local produce.
3. Algae can be used as a food additive for human consumption.
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| Other information | Donegal Hydro Harvesting are a SME start-up whose skills include: * System design for renewable energy projects
* Software design and programming
* Project management
* Proposal management
* Communication and dissemination

The Inishowen Algae project has a network of stakeholders from the agriculture community in Ireland to demonstrate the interest in the commercial outputs of a project.  |
| Previous Horizon 2020 projects | Donegal Hydro Harvesting have not participated in previous H2020 projects. Members of the team have experience in the submission and management of H2020 Innovation Action projects. |
| Contact Details, Name, Email & phone number | Carlene Lyttle0830329339info@inishowenalgae.com |
| Irish NCP | Matthew Clarke Matthew.Clarke@agriculture.gov.ie +353871026192 |