

VALUE CREATION AND ECOSYSTEM SERVICES OF EUROPEAN SEAWEED INDUSTRY BY REDUCING AND HANDLING POTENTIALLY TOXIC ELEMENTS (PTE) FROM BREEDING TO SOIL

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Abstract

The new BlueBio project – SeaSoil will deal with pressing issues regarding utilization of the blue biomass, seaweed, to promote a sustainable and competitive blue bioeconomy in Europe. The low trophic seaweed may significantly contribute to the food system as well as the carbon sequestration and storage (CSS) in agricultural soil when potentially toxic elements (PTE) of e.g., inorganic arsenic (As), cadmium (Cd) and iodine (I) can be managed safely in the food supply system.

The project is a consortium of ten European partners from Norway, Ireland, Denmark, Estonia, and Croatia. The project goals will be reached through six work packages. The project goals are: a) to estimate heritability's and genetic correlations in contents of Cd, As and I in sugar kelp, b) to study the impact of seaweed application rate and water saturation on the As dynamics in the soil to determine chemical reactivity and potential bioavailability of labile As,

c) to estimate the potential of seaweed amendments for CSS in agricultural soils, d) to study the impact of seaweed production on the environment using LCA, and conducting a cost-benefit analysis of the seaweed industry, e) to study the economic feasibility, and regulatory incentives, for production and use of (residual) biomass from farmed seaweed and f) to ensure the multi-actor approach and integrated cooperation, communication and human capacity building in line within Responsible Research and Innovation (RRI).

The overall goal is to investigate the potential of using seaweed in agriculture where the Faculty of Agrobiotechnical Sciences has the task of studying soil respiration of soil amended with seaweed as well chemical and physical soil properties of such amended soil.

Key words: BlueBio, seaweed, agriculture, carbon sequestration, PTE

