Harvesting soil with potatoes

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EGENLYNG

rvesting Soil with Potatoes

wegian authorities demand soil leaving potato packing plants to be deposited vaste. Depositing soil from potato processing plants is associated with ıificant cost for Norwegian producers. Therefor CYCLE investigated potato soil vesting from an innovation and socio-economic perspective.

In all industrialized countries soil adhering to carrots, onions, potatoes and other vegetables is 'harvested' along with crops and transported into processing plants, where the soil is washed of and left to a fate that 'depends' on a combination of economic, institutional and technological factors. This soil loss is defined as soil loss due to crop harvesting (SLCH). Norway may in the next 40 years loose four million tonnes of agricultural soil. Political, social and economic drivers of soil loss and erosion have been neglected in social sciences, however, there is a growing political awareness of the value of soil, and the challenge to create socio-economic conditions and policies to support soil conservation. Therefore the Norwegian case of harvesting soil with potatoes was explored as reported below.

In Norway, wet soil sludge mixed with crop residues is commonly deposited as landfill in long-term storage facilities, to avoid that possible pest organisms, e.g. potato cyst nematodes, may be spread and infect farmers' fields. The economic rationale at stake is that for individual farmers and potato processing companies, monetary costs associated with SLHC directly affects financial bottom lines of each company. Processors perceives current regulation impacting SLHC management as a hindrance to competitive performance and see a need for innovative solutions to the SLHC problem. Referring to SLCH as 'food soil', the farmers and processing industries are aware that the SLHC is a productive resource for the food economy and they wish for society to make best possible solution to the challenge of what to do with this resource, other than treating it as [dangerous] waste.

Depositing fertile soil represents a loss of productive natural capital. SLCH has received increased attention in recent years, and a detailed overview of biophysical factors affecting the amount of soil co-extracted with carrots, leek, potatoes, sugar beets and some other crops across several countries has been obtained. In Belgium economic loss related to SLCH in sugar beets was estimated at 60 million Euro/year (Verstraeten et al 2006), however no similar figures for Norway were available.

> *About 100 000 tons of valuable soil are lost annually by the deposition of soil from potato packaging*

Main soil loss due to potato harvesting is attributable to 3-4 large packers some of which has their own landfills on private land, and several smaller processing plants depositing the soil to municipal landfills, where the soil is perhaps mixed with other types of waste.

Risk from plant pathogens or pest species potentially present in soil waste from potato processing plants include potato cyst nematodes, bacterial ring rot of potato and potato bacterial wilt. Due to imported products being treated in the processing plants, there is also risk of introducing new pest species. Composting metholodogies developed by CYCLE research and industry partners can potentially minimize the risk of soil borne contaminations to a level low enough to accept re-cycling of soils currently lost due to the mandatory requirements from public authorities for producers to deposit soils harvested along with potatoes.

Depositing soils harvested with potatoes for 30 years at county landfills is a costly solution, removing a productive resource from the production landscape and incurring significant transaction cost on society, consumers and producers. Whether this highly precautionary practice can be economically and environmentally justified is a question for future research just like replacement with alternative practices will depend on R&D.

If Norway rejects alternative solutions to the current practise of depositing soils harvested with potatoes, Norway will in the course of the next 40 years loose four million tonnes of agricultural soil to landfills. Depending on future research investment policies, innovative composting solutions may be developed allowing potato processing plants to compost away the current soil loss due to potato harvest problem.

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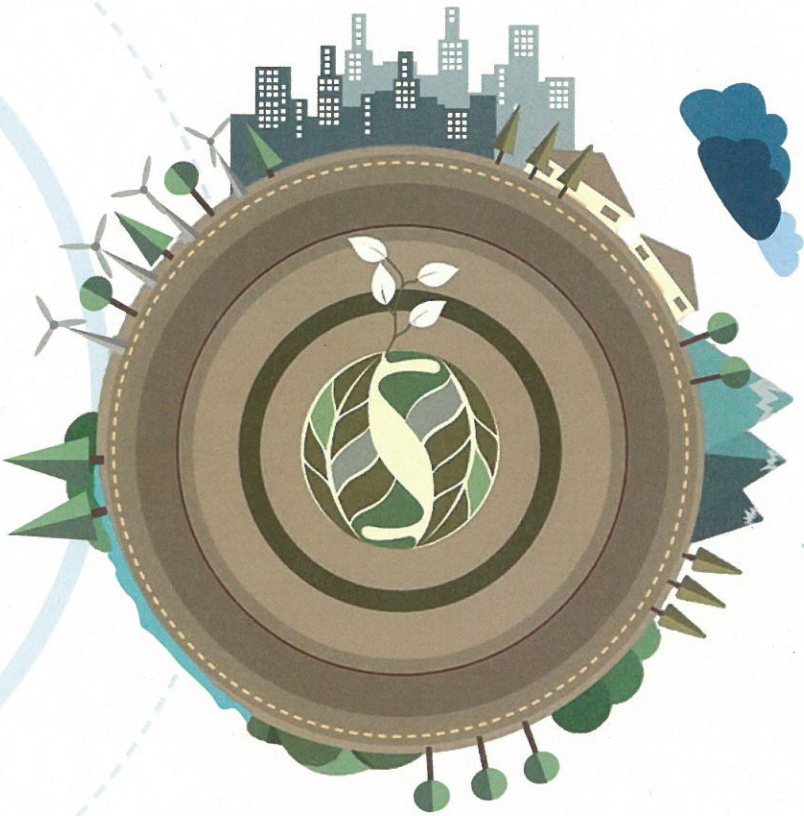

Total utilization of raw materials
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