HKSCAN ESTONIA: SLURRY FROM PIG FARMS

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HIGHLIGHTS

- *The high price of mineral fertilisers has made slurry distribution a lucrative practice for HKScan.*
- *High cost of transportation is the main obstacle for the practice to spread further away from the farms involved in the process.*
- *Technological aspects are the biggest factors and risks to consider.*

ABOUT THE CIRCULAR PRACTICE

This case study looks at by-product, i.e., manure or slurry management at HKScan Group Estonian subsidiary´s (hereinafter HKScan) pig farms. HKScan is among the biggest meat producers and responsible for 10% of crops grown in Estonia. The company deals with a constant stream of pig slurry. Slurry is collected in containers and sold to collaborating independent farmers who grow their feed crops. The case illustrates cooperation in the efficient use of bioresources between animal husbandry and crop production operations. The use of slurry in crop production is not new, in fact it is required by law. However, the economic benefit of this practice has only emerged as a result of the surging prices of mineral fertilisers. In addition, this practice has environmental benefits and directly contributes to meeting the EU Green Deal goal of reducing the use of mineral fertilisers.

BUSINESS MODEL

The law requires a company to have contracts or own sufficient land to use the slurry it produces. HKScan has historically had an over-supply of slurry that translated into production costs. As a result of the enormous price increase of mineral fertilisers, the slurry market has shifted from over-supply to demand. This situation allows HKScan to distribute the slurry to all its contractual feed suppliers for a fair price as well as sell it to third parties. Production volumes and standardised business operations are among the core elements that make HKScan a reliable partner that provides dependable slurry distribution services. Farmers also acquire mineral fertilisers from HKScan who distributes them in bulk.

Due to the high volumes (one cubic meter of slurry equals 2-3 kg of nitrogen), slurry spreading feasibility strongly depends on the transportation costs which makes it a very localised practice. The optimal distance is 7 km, and farther than 25km becomes impractical. To keep the crop production feasible for farmers, HKScan takes into account the costs for the farmer when setting its price for slurry. Only a large number of livestock makes it feasible to store the slurry in conditions required by law. Technologies for separation of the wet and dry parts and production of industrial fertiliser require further investigation and analysis.

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ABOUT CIRCLE

The CIRCLE project aims to develop an interdisciplinary perspective on the circular economy in the Baltic-Nordic region by integrating insights from sociology, economics, philosophy, political science, and environmental science. The emphasis is placed on the use of by-products (bio-resources) generated as part of primary production in agriculture, forestry, and aquaculture and across the sectoral boundaries to explore the underlying models of socially- and commercially-driven collaborations, and the factors facilitating and hindering the development and wider use of circular practices and collaborative arrangements thereof.

More about CIRCLE:
https://circle-eea.eu

Iceland Liechtenstein Norway grants

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The are no downsides to the application of slurry in place of mineral fertilisers. Slurry has a long-term positive effect on soil biodiversity (something mineral fertilisers cannot do) and it has the capacity to increase CO2 capture. The latter can result in users right to enter the carbon credit market and receive support from the EU. Without providing its partner farmers the opportunity to improve soil with slurry or by raising the price of slurry or the distribution technology too high, HKScan would cause the bankruptcy of their suppliers. This would have a two-fold negative effect as the company would need to find a new feed supplier and a solution to utilise the slurry. From an input cost point of view, it is reasonable to keep the slurry in its own value chain.

OPPORTUNITIES AND CHALLENGES

The company must have contracts to prove there is sufficient land for the amount of slurry it produces. Thus, having a client base is at the core of HKScan's business operations. The conditions under which the slurry is distributed depends on economic (price of alternatives and fuel) and regulatory (what is allowed and/or subsidised) factors. Technological upgrades to enlarge the geographical area of business operations still need to be investigated and developed. HKScan considers building a biogas plant to produce gas before putting the digestate on the field and to acquire further value from the slurry.

The main challenges in slurry circulation are (i) the limited time during which slurry can be distributed and (ii) the weather conditions (e.g. heavy rainfall and soft soil) that may shorten the time even more. The benefits to the soil are balanced with the risk to the environment, should the nutrients flush away or accumulate. Hence the dosage and content need to be carefully planned for optimal use. The heavy machinery needed for the practice is problematic to the infrastructure around the fields. The internal combustion engines make the distribution machinery pollutive and expensive. Because the price of slurry is dependent on distance, HKScan price policy needs to calculate its impact on crop production costs to avoid pushing its crop suppliers into bankruptcy.