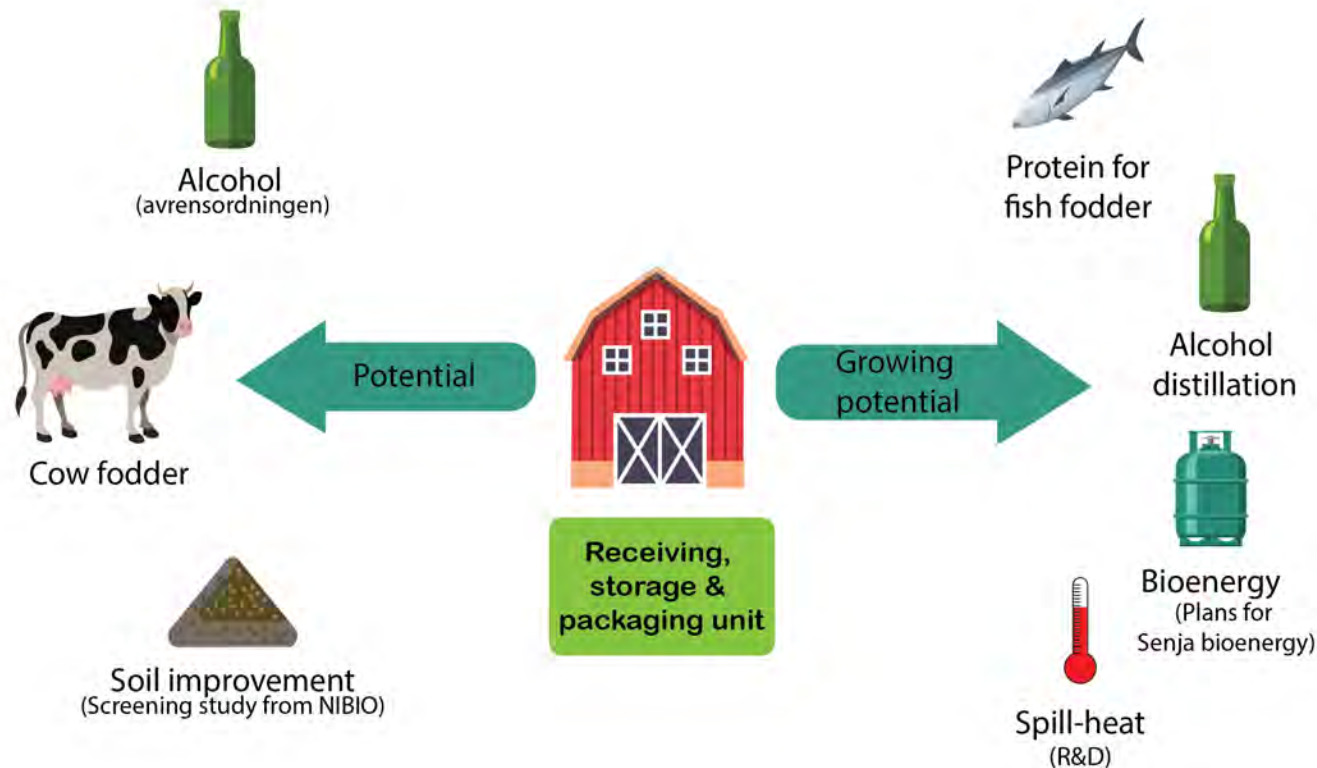


Waste utilization on potatoes and other vegetables – current and growing potential



Background

- Farmer-owned company that is receiving, setting in storage, and packing of potatoes and other vegetables.
- The unit is closely collaborating with other food processing companies to process products, mainly from potato and root swede.
- This strong collaboration is further enhanced by proximity (same building location) and personnel structure (most workforce in common).



Key partners, activities and resources	Value propositions	Customer segments and product selling channels
<p>Key partners</p> <ul style="list-style-type: none"> - The 2 collaborating farmers, Hoff potetindustri, local waste handling company. <p>Key activities</p> <ul style="list-style-type: none"> - Logistics, that remain challenging: no receiving hall for potatoes, limited efficiency. - Need for new vegetable storage, receiver hall, that can possibly offer divided storage depending on storage temperature. - Know-how: it remains challenging to use potatoes/peel as dairy fodder. There is a need for machinery and storage for peel to make feeding effective. Energy storage is an issue. <p>Key resources</p> <ul style="list-style-type: none"> - Technical, grading-machine, washing, polishing, packing also packing robot; Personnel: an engineer is working on using wasted energy. 	<ol style="list-style-type: none"> 1. The out-sorted potatoes (varieties Gulløye and Mandel that are high in dry matter) are used for alcohol production, by a governmental quota system (avrensordningen) and sent at various times a year. 2. The main fraction of the out-sorted potato is used for fodder by a dairy farmer. 3. Potato peel is used as cow fodder, and sometimes in compost. 4. Energy waste – potential for increased use, used for heating offices. <p>The rest of the out-sorted potatoes (mainly rotten potatoes) are sent off as waste to the local waste company – a small fraction.</p>	<p>Customer relationships</p> <ul style="list-style-type: none"> - A bit limited and varying on how much they send to Hoff potetindustri. - A bit vulnerable to be dependent on two farmers to take fodder. Especially challenging in winter with the peel, that is high in water content, since it freezes fast. <p>Customer channels</p> <ul style="list-style-type: none"> - Peel and out-sorted potatoes to the farmers are transported only when needed by the local waste handling company. - Various transport companies take the out-sorted potatoes for alcohol (preferable on trucks that deliver potatoes to the company). <p>Customer segments</p> <ul style="list-style-type: none"> - There are 2 dairy-farmers for fodder from peel and out-sorted potatoes. - Local waste company, rotten potatoes - Hoff potetindustri (for the alcohol production), out-sorted potatoes from Gulløye and Mandel.



Cost structure

The main cost is for sending potato waste to the waste company. This is mainly due to the fact that the soil is considered “special-waste” because of a possible Potetocystenematode, Globodera outbreak. Typically, between 1 and 1,50 NOK per kilo.



Revenue streams

In general, limited currently active revenues from waste management, but the alcohol line seems immediate promising. Small payment for the peel that they send through the cleaning scheme.



Challenges

- Logistics
- Efficiency
- Access to relevant competence (know-how)
- Small number of farmers involved