AGRICULTURAL PLASTIC

How to manage silage film in a sustainable way?

GENERAL INFORMATION

In 2019, **86,6%** of agricultural plastic was recycled, as compared to **33,5%** for domestic plastic. However, since the volumes of agricultural plastics are so large, even a modest percentage gone astray has huge impacts.

A large portion of the agricultural plastic is silage film, which is made of **high-quality plastic**. It is easy to recycle and has a stable demand. There is huge potential in exploiting this plastic.

We present different solutions and options, including a new circular value chain by Orkel with **35% recycled plastic**. We also focus on motivation and challenges for each farmer.

ORKEL

Orkel is a producer of agricultural- and industry machinery. They wish to implement a **circular value chain** for silage wrap and be more involved in all stages, including as a plastic importer. This is both an example of increased **producer responsibility** and a financial opportunity for both the farmer and Orkel.

Orkel's solution is a **deposit-refund system** where the farmers commit to buying silage wrap from Orkel for a longer period, and then get a refund when they return silage wrap. Used silage wrap is collected by Orkel's collaborator and transported to a recycling plant.

PLASTIC PRODUCER

Aspla uses the granulates produced by IVAR to make new plastic products like silage film which Orkel then imports.

RECYCLING PLANT

IVAR washes, dries and melts the recycled silage film into plastic granulates. Granulate is the primary matter in the production of plastic products.

COLLECTOR

Grønt Punkt Norge AS (GPN) organizes **financing** and **collection** of waste. Regarding plastic, producers/importers must pay a fee which finances the delivery of used plastics for the farmer. The farmer delivers the plastic at a collection point, or collectors are paid to pick it up.

The plastic is sorted and sent to recycling plants approved by GPN. 2/3 are sent to Folldal recycling. The remainder is sent to different parts of Europe.

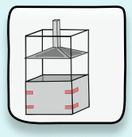
Some of the recycled plastic can be found in silage film, while most is used for other material- or energy recycling.

PLASTIC IN NORWEGIAN RIVERS

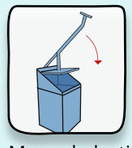
In 2019, silage film was discovered in many rivers in western Norway. The amount of agricultural plastic was **3 times** that of all other sources combined! Plastic foil left outside and exposed to rough weather often **ends up in rivers**, eventually reaching the ocean.

PLASTIC PRESS

There exists semi-automatic and powerful packaging presses, but these are both **expensive** and large. Many farmers meant that it is sufficient with a press of **simpler design**. This can decrease both the prize and size of the press.



Press powered by tractor



Manual plastic press

THE FARMERS THINK...

In our survey, we found that:

- Most farmers deliver the plastic themselves to one of GNPs collection points. While most are satisfied, 35.2% thinks the collections points are either **too far away** or that the plastic is **not collected often enough**.
- Farmers are **environmentally conscious**. Easy and predictable solutions for plastic collection, environmental considerations and economic compensation are all important motivations for the farmer.
- Orkels value chain is met with **positive interest**. Regular pickup for freeing space is deemed important by many. The minimum refund required to spike interest varies, but is in general lower than Orkels maximum proposal of 50%. 56% are willing to commit to one plastic provider.
- Farmers find it challenging to store used silage bale plastic. 30% says that some of the plastic blows away and 30% say it is **difficult to keep it clean** under storage. Orkel might solve this by implementing a plastic press within their value chain, making storage easier for the farmer.
- 13% of farmers have a plastic press for **efficient storing**. Of those who don't have one, 70% state that they would be interested in acquiring one.

Information about our survey and references can be found in the supporting document for this project.