Case Produserpakkeriet

Improving the utilisation of co-streams in potato and vegetable processing

Adler S.¹, Løes A.-K.², Rommi K.³, Slizyte R.⁴, Kambestad G.⁵, Albrektsen T.-E.⁶

The research project CYCLE aims at achieving total utilisation of raw materials from fish, chicken and vegetables with cycle thinking and sustainable technologies for an efficient and profitable food industry. CYCLE-industry partner Produserpakkeriet is a sorting and packing facility for vegetables and potatoes. The company wants to increase the economic return from co-streams and decrease the costs related to disposal of wastes. In CYCLE, options have been identified for upcycling poorly utilised co-streams such as discarded potatoes and residual soil.

Potato roundbales

CYCLE industry partner Orkel mailed a mix of discarded and chopped potatoes, grass silage and beet pulp in two roundbales using the Orkel Composter.
- Run-off was observed from the bale with 24% dry matter, but not from the bale with 29%.
- After 12 weeks both mixes were well preserved and starch content had decreased with about 10%.
- The low elasticity of the material made it challenging yet manageable to wrap the bales in plastic.

Ensiling

In the CYCLE spin-off project SoCaPro (Regional Research Fund Mid-Norway) researchers are exploring options to ensile discarded potatoes and vegetables mixed with other ingredients and probiotic bacteria in vacuum bags.
- Ensiling may improve feed value and extend shelf life.
- Probiotic bacteria can have beneficial effects on gut health in e.g. pigs and calves.

Potato residual soil

At Produserpakkeriet, annually 8,600 tonnes of residual soil is disposed of as landfill for 90 years to avoid spreading of plant diseases. CYCLE proposed a project idea for alternative, but safe use of this resource.
- Heat released during composting (right photo) may be utilised for sanitising residual soil.
- Sanitised soil may be returned to agriculture or processed further to garden soil.

Biopolymer film

CYCLE investigated options to prepare biopolymer film from potato peel mass (Rommi et al. 2015).
- Film properties: Excellent grease barrier properties, highly resistant towards oxygen penetration in dry conditions, but low resistance towards water and water vapour.
- Possible applications: Packaging of dry foods, potato film for mulching.

Upcycling

CYCLE has studied options for upcycling poorly utilised products and developed spin-off projects. Implementing the new knowledge has a potential to improve the utilisation of local resources, introduce new products with interesting properties and increase the economic return of potato and vegetable processing plants.