

Sidestream of the month

June 2018

*(Examples for high potential waste, by-products and residues
from primary and secondary biomass resources)*

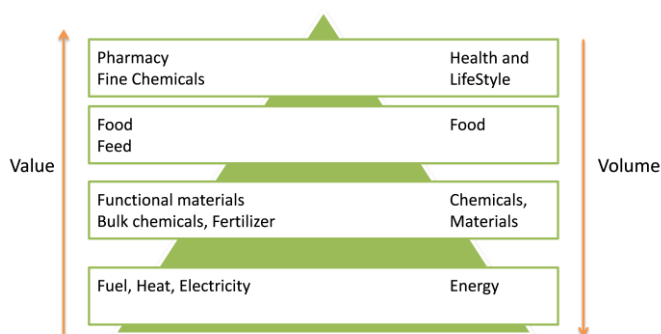
“fruits and vegetables”



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Fruits and Vegetables

Instead of sending to landfill, composting or burning the sidestream directly after harvesting/ processing there are higher added values to be achieved applying a cascading and circular approach:



A) Highest added value

Food and feed

Ongoing development of extraction techniques for bioactive compounds from vegetable waste promise the capability to food additives out of them. Tomatoes in particular can be treated in a way that lycopene can be extracted. Lycopene is a powerful antioxidant known for its cancer beating properties. 110 mg lycopene can be produced by 100 kg pomace.

Close to market technologies offer the possibility to provide ingredients and additives in feeds for livestock, aquaculture and pets.

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B) Medium added value

Functional material

Packaging

Biopolimers can be developed for the production of vegetable packaging. Through the process of cleaning and grinding of pulp, which is similar to paper process from wood, paper out of the fibres can be made, which again can be used for packaging of e.g. paprika seeds or vegetable plants.

[BIOVEGE](#)

[HORTOVITALIS](#)

[Valorise-by-schutpapier](#)



Fertiliser

Fertilizer such as microalgae based fertilizer can be produced. Technologies for on-site production of microalgae and their usage as fertilizer in vegetable and grain cultivations is very practical especially for traditional vegetable suppliers/ farmers who don't have much possibilities to to change the cultivation methods.

A substrate can be obtained after insects eat the waste, which makes an excellent fertilizer.

[VegaAlga](#)

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C) Lowest added value

Energy

Biomass

There is always the possibility to compost the vegetable residues and e.g. open pond technology for on-site production of microalgae biomass or supplying the residues to biomass production sites.

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