

Usage Potential of Vegetable Residue Streams

¹Britta Brands, ²Marieke Vanthoor and ¹Matthias Kleinke

¹*Rhine-Waal University of Applied Sciences, Kleve, Germany*

²*Grassa BV, Venlo, The Netherlands*

Abstract

Harvesting of various vegetables produces large amounts of vegetable waste, consisting of leaves (potatoes, beets, and carrots), cuttings (leeks), but also other plant residues (beans and peas). In 2017 total amount of these residues in the German Lower Rhine region and the Dutch Provinces Limburg and North Brabant was 16.000 T dry matter. The total amount of vegetable residue streams in the Netherlands in 2012 was about one million ton per year (Korthout and van der Meulen, 2012). These residue streams consisted of material that was left behind on the fields during the harvest, fruit and vegetables that did not meet the quality standards, material that is removed during the process after the harvest and residues that are unsold and disposed of at the end of their shelf life (Bondt, et al, 2010; Elbersen et al., 2011; van der Voort and Rooij, 2012; van der Voort et al., 2006). Currently, the majority of this material is either used in feed or in the generation of biobased energy. The residue streams contain valuable components as plant-based protein and sugars as well as long-chain carbohydrates. Those components can be extracted and separated into different fractions that could be processed in the food or feed industry. Within the frame of the Interreg project BIVAC, first attempts to extract valuable components of different residue streams have been analysed and have shown promising results. The use of these previously unused residue streams would lead to the local production of food ingredients in contrast to the imported soy that is currently used and by this prolong the shelf-life of the produced food due to shortened transport times. At the same time, the use of the residue streams would reduce the flushing of nutrients on the land currently caused by leaving the excess amounts of material and at the same time being able to locally apply minerals received from this material where necessary. Ultimately, this use would result in the creation of higher value chains by using the residue material as food.

Keywords: Biorefinery, Circular Bioeconomy, value chains

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