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## Dry fractionation in barley processing

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Wet processing is often used to alter the composition of natural materials. Wet processing requires copious amounts of water, energy and chemicals while focus is mostly on pure ingredients. However, for many applications complete purity is not necessary and sometimes even counterproductive. Dry fractionation is an interesting method to alter the composition of raw materials slightly. The big advantage of dry fractionation is that no water and chemicals are needed while the absence of a drying process reduces the energy consumption considerably. In this presentation, we will demonstrate the potential of a specific dry fractionation step (i.e. pearling) as a new route to alter the composition. Besides, the effect on functional properties will be given having the main application, the beer brewing process in mind. Pearling is an abrasive method to remove the outer layers of the barley kernels. It has been shown to reduce the content of insoluble fibre, ash, protein and polyphenols. Removing the outer 5% of the kernel for example results in a 15% reduction of insoluble arabin oxylans, 23% of the insoluble fibre content and 25% of the water holding capacity of the non-starch components. It also reduces the ash content by 19% and the polyphenol content by 11% while only 0.20% of the starch is pearled off. A relation was found between the insoluble fibre content and the water holding capacity of a fraction. Lower fibre content reduces the water holding capacity and as a result the volume of the spent grains which implies that less worth and sugar are lost during filtration.

## Biography

Laura H G Van Donkelaar has completed her Masters degree in sustainable process engineering at the age of 23 years from Wageningen University. Currently, she is working as a PhD in the Food Process Engineering Group at the same University. She works on the optimization of the use of agricultural materials and focusing on barley.

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