

# CASE STUDIES

#UNSTOPPABLEMEURA

## PLANT BASED

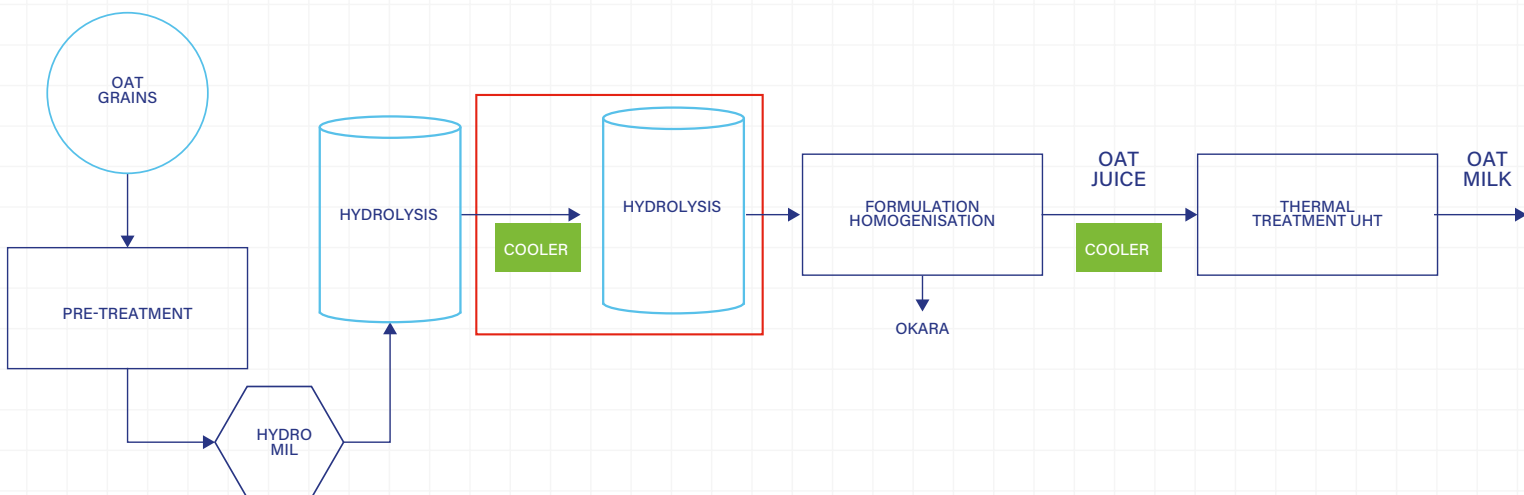
**Today, an increasing number of consumers choose plant-based milk substitutes for health, environmental or ethical reasons.**

Soy milk was the first plant milk substitute to be established on the market, but the consumption of other alternatives products from plant sources such

as almond, coconut and cereals is now growing fast worldwide, more particularly oat milk. Oat milk is an interesting alternative to cow's milk since it has a high nutritional value, and its cultivation is easy in many areas around the globe.

Meura is recognised worldwide as a key supplier

of cereal grains extraction processes and technologies producing high gravity worts or extracts. With its extensive experience in this field, Meura has identified the critical steps and challenges for oat milk production, and has worked on a process solution focusing on sustainability, yield and product quality.



Meura's concept for oat milk production is based on oat grains as a starting point for raw materials, and the use of the Meura2001 mash filter for solids separation. The processed steps are detailed here below:

- ▶ **1° Pre-treatment:** oat grains first undergo a partial dehulling and thermal pre-treatment in order to minimise off-flavours coming from lipids oxidation.
- ▶ **2° Milling/Hydration:** Treated oat grains are milled with water in the **Hydromill**. This equipment allows for combining the 2 operations of fine hammer milling and hydration in one step, with low water/grist ratios and is safe from oxygen uptake. Enzymes and additives can be added at this stage in the mashing-in water.
- ▶ **3° Hydrolysis:** the oat suspension is heated by the **Aflosjet** direct steam injection system at the different temperatures of the hydrolysis procedure in order to reach the desired proteins and sugars profile. At this step, the choice of enzymes and hydrolysis diagram is of high importance to meet quality, nutritional and process efficiency requirements. Managing the hydrolysis process has the benefit of allowing an adjustment to the sweetness according to consumers' preferences and the creation of differentiated products.
- ▶ **4° Filtration:** starting from partly de-husked oat grains has the advantage that the solid/liquid separation can be performed on a **Meura 2001** filter. The Meura 2001 filter is a proven technology in brewing, distilling and extraction industries, providing maximum extract recovery thanks to fine milling and

the thin bed membrane assisted concept. After filtration and precompression, a sparging step enables the recovery of extract from filtering cakes. This means that okara (=spent grains) at 75% H<sub>2</sub>O moisture no longer contains significant extract. The gain on yield for oat juice production is estimated at 10 % compared to the classical process with a solid separation technology without sparging step. The filtered liquid, also called "oat juice" or "oat base" is then cooled and ready for the next process steps.

- ▶ **5° Formulation / Homogenisation:** additives such as oil, salts, flavouring agents, nutrients (vitamins) etc are added to the oat base in a tank, where a high shear mixing is applied to produce a stable emulsion. This step is very important for the oral experience of the final product.
- ▶ **6° Final thermal treatment:** commercial plant-based milk substitutes are usually pasteurised or UHT treated to extend the shelf life of the product

