

## OPTIMALT - A rapid and reliable tool for assessing the malting quality of barley using automated optical analysis.

The EU malting barley industry supplies almost 50% of global malting barley requirements. The sustainability of thousands of EU SME farmers depend on the competitiveness of this industry, as is the quality of our brewing and distilling industries. Malting barley demands a premium at the farm gate but, in return, must exceed a range of malting quality (MQ) parameters laid down by the processing industries. Determination of barley MQ is a critical issue, as the accuracy of its assessment determines if the barley is suitable to be taken into the plant, influencing its price and subsequent quality of the end product. MQ is a complex character. To date its grading is largely dependent on a combination of visual appraisals of the barley and other assessments, including wet chemistry techniques, to segregate malting barley into grades of different end use value. Current assessment practices are plagued with limitations: time and labour intensive, prone to operator interpretation, etc.

This project will provide the Malting Barley chain with a novel MQ assessment tool to replace the expensive, laborious and non-objective standard analyses currently used by the sector. Novel inspection techniques will be researched (NIRS, Raman, 3D machine vision technique, Imaging fluorescence spectroscopy and FT-IR/PAS) to determine their potential for predicting MQ parameters. A prototype measuring instrument will be designed, developed and calibrated against existing reference methods. It will be validated for use along the malting barley chain and will provide analyses in individual and whole barley grains and in a large number of samples in order to assess the homogeneity of the incoming raw material, vital for good MQ determination, and will assist in analysing the malting process. The RTD results will raise the quality of the EU malting barley supply chain, safeguarding growth and employment in many rural economies across EU-27, and ensuring consistent quality in industries dependent on high quality malt.

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