


PROJECT COORDINATOR:

Dr. **Mirta** Rodriguez Pinilla
 IRIS SL
 Innovació i Recerca Industrial i Sostenible
 Spain
 mpinilla@iris.cat

PROJECT OFFICER:

Ms. **Aneta** Ryniak
 REA
 Research Executive Agency
 Brussels
 Aneta.RYNIAK@ec.europa.eu

RTD PARTNERS:

IRIS Innovació i Recerca Industrial
 i Sostenible, Spain

 VTT Optical Instrumentation
 Center, Finland

 CERB, University of Perugia, Italy

INDUSTRY PARTNERS:

ASSOBIRRA, Italy
 Asociación Empresarial de las Cinco
 Villas AECV, Spain
 Petita i Mijana Empresa de Catalunya
 PIMEC, Spain
 Cerveses La Gardenia, Spain
 Food Industries Federation of Austria
 FIAA, Austria
 ProAgria Association of Rural Advisory
 Centres, Finland
 ELINTARVIKETEOLLISUUSLIITTO
 RY, Finland
 Perä Jussi, Finland
 LNL Technology Ltd., Turkey
 Optomesures, France

A rapid and reliable
 tool for assessing
 the malting quality
 of barley using au-
 tomated optical
 analysis

OPTIMALT
www.optimalt.eu
 01/12/2009 – 30/11/2012

ABSTRACT:

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.

KEYWORDS: Malting Quality, Barley, Brewing, Automated Control, Optical Analysis, Spectroscopy