



EUROPEAN COMMISSION
JOINT RESEARCH CENTRE

Institute for Health and Consumer Protection
Molecular Biology and Genomics Unit



Mandate for an ENGL Working Group on Unit of Measurement (WG-UoM)

Approved by the ENGL Steering Committee on 11th February 2015

Background

Quantification of genetically modified ingredients in food and feed is typically achieved by polymerase chain reaction (PCR). qPCR provides quantification (relative or absolute) of target sequences that are the molecules template for specific amplification.

The GM content is expressed as ratio between a given GM ingredient over the total of that ingredient in a sample [e.g. (GM maize/total maize)*100]. The quantification is typically done by calibrating the PCR assay with certified reference materials (CRM) characterised for a given GM %. As most of the CRM are certified for mass fraction, the results are to be expressed in mass fraction.

Over years a certain degree of confusion was generated and still remains on the unit of expression of the GM percentage when using qPCR, i.e. if this unit should be haploid genome copy number (as provided by Recommendation 787/2004) or mass. Hence the relation between the two units is relevant, particularly because new technologies, like digital PCR, allow the direct quantification of DNA copies without the link to a CRM.

This relation is crop specific and influenced by biological factors, e.g. sexual reproduction, grain morphology, ploidy, etc. While for some crops, e.g. maize and soybean, these factors have been sufficiently identified and described, for other main GM crops this is not the case.

Tasks

The WG shall prepare an overview of the state of discussion about the relationship between copy numbers and mass for the main GM crop species and prepare a reference list of conversion factors that should be used by test laboratories in order to ensure comparability of results.

The WG may decide to take on board additional tasks if agreed. It may also consider inviting non-ENGL experts to join the discussion.

Timeline

The working group is expected to meet before June 2015. At that first meeting it shall establish a detailed work plan to be presented to the ENGL SC on 17/18 June 2015. A final draft report shall be discussed at ENGL SC in February 2016 and the final report should be approved by the ENGL plenary in April 2016.