

Technical Working Party on Automation and Computer Programs TWC/39/5**Thirty-Ninth Session
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DEVELOPMENT OF SOFTWARE FOR THE IMPROVED COYU METHOD (SPLINES)*Document prepared by an expert from the United Kingdom**Disclaimer: this document does not represent UPOV policies or guidance***EXECUTIVE SUMMARY**

1. The purpose of this document to give an update on software development for the improved version of the Combined Over Years Uniformity (COYU) criterion. It also reports on a test campaign for the software. The document should be read along with document TWP/5/11 “The Combined Over Years Uniformity Criterion (COYU)”.
2. The TWC is invited to:
 - (a) note the progress on software development.
 - (b) consider the plan for a campaign to test the software.

BACKGROUND

3. The Combined Over Years Uniformity (COYU) criterion is a method used to assess uniformity on the basis of measured quantitative characteristics (see document TGP/8/3 “Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability”). Previously, the development of an improved method has been reported. For further background on the improved method, see document TWC/38/6 “The Combined Over Years Uniformity Criterion (COYU)”.
4. Software has been developed to enable implementation of the improved COYU method. This document reports on the latest development, giving an update on document TWP/5/11 “The Combined Over Years Uniformity Criterion (COYU)”.

DEVELOPMENT OF SOFTWARE INCORPORATING THE NEW COYU METHOD

5. Completion of the new software was delayed due to both technical and resourcing factors. However, the software for evaluation was finalised during July 2021.
6. The new COYU, using splines, has been implemented in two software packages, both of which will be made available free of charge to UPOV members.
7. Firstly, the new COYU is available as a new module in DUSTNT. DUSTNT is a software package for the analysis of data from DUS trials, and is freely available (see document UPOV/INF/16/9 “Exchangeable Software”). This software is not only used routinely by a number of members, but has been used for benchmarking software for COYD and COYU. As part of the process of incorporating the new module, the installation process has been updated to fit the current Windows model.
8. Secondly, the new version of COYU is available as a package in the statistical programming language, R. This version is suitable for those members already using R software for DUS analysis. R is freely available as is the COYU package. The COYU package is available either as source code or as a more easily installed

R library binary. In the longer term, there are plans to add this to the CRAN repository of package to give easier access to the latest version and to facilitate maintenance.

9. Details for access to the software will be given to those experts participating in evaluation of the software. Once the software has been evaluated and updated, details for access will be made public.

11. TWC is invited to note the progress on software development.

EVALUATION OF THE NEW SOFTWARE

12. In early August 2021, a circular was sent out by the UPOV Office to seek participation in the testing of the new software. This campaign is due to be completed by the end of December 2021.

13. TWC is invited to consider the plan for a campaign to test the software.

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