UPOV
International Union for the Protection of New Varieties of Plants

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Technical Working Party on Automation and Computer Programs **TWC/39/5 Add.**

Thirty-Ninth Session
Alexandria, United States of America, September 20 to 22, 2021

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ADDENDUM TO 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

The annex to this document contains a copy of a presentation on "An update on COYU development", prepared by an expert from the United Kingdom, to be made at the thirty-ninth session of the Technical Working Party on Automation and Computer Programs (TWC).

[Annex follows]

An update on COYU development

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BioSS

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What is COYU?

Combined Over-Year Uniformity criterion (COYU)

A method for determining uniformity of candidate variety

- Mostly used for agricultural crops, but also some vegetables
- Characteristic-by-characteristic
- Quantitative characteristics, measured on single plants
- Two or more cycles
- More information in TGP/8

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COYU key concepts

Compares uniformity with similar varieties

Measures uniformity through standard deviation (SD) of measurements within plots

- Log (SD+1)

Adjust for any relationship between variability (SD) and level of expression (mean)

- This is main element that we have changed

  Moving-average ➔ Spline

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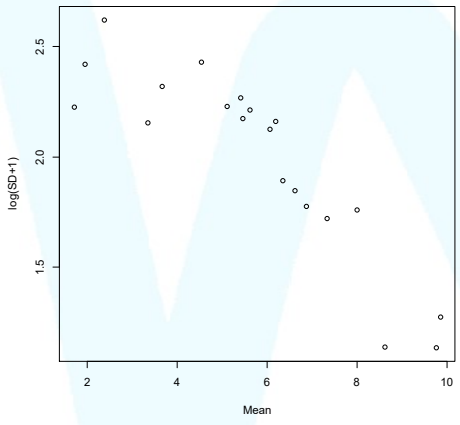
Relationship between uniformity & mean



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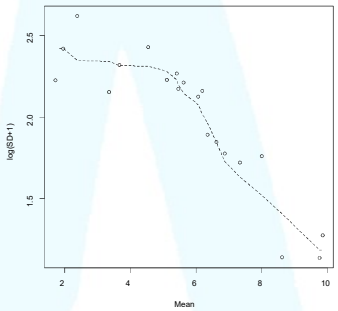
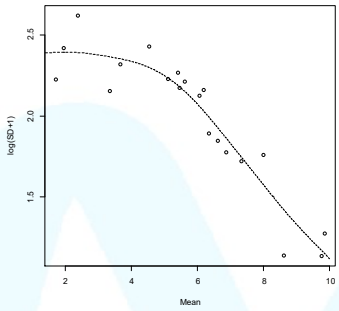
Moving average



Spline



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Adjusted values

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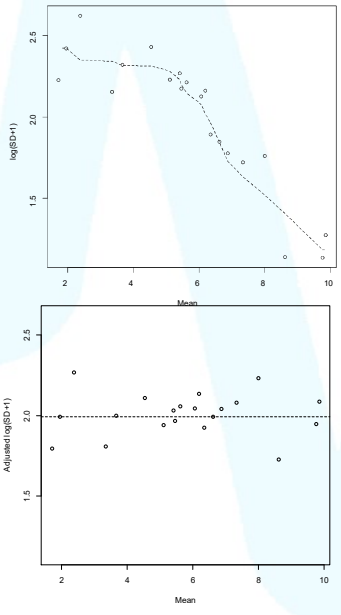
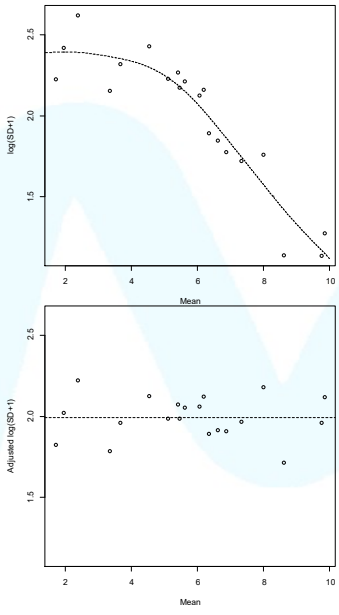
Moving average



Spline



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Recent developments

Documents TWP/5/11, TWC/39/5

Summary:

- Proposed revision of TGP/8, Section 9
- Software now ready for evaluation
- Circular sent out by UPOV Office seeking participation in the testing of the new software

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Test Campaign

Started with UPOV Circular on 4 August 2021

To finish on 31 December 2021

Report for next session

So far 8 members have indicated that they will participate

All welcome!

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New Software

R package

- Suitable for those wanting to integrate into their own systems
- Requires R coding skills
- R is a high-level software environment for statistical computing. It is free and widely used.
- The COYU package is freely available, including source code.
- Eventually could be made available in CRAN, the central R package library

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New Software

DUST9NT

- New module in the DUST9NT software package
  - **Uses the R code**
- Easier for those without coding skills
- DUST9NT will include modules for both COYU using moving average and COYU using splines
- DUST9NT is freely available from the UK (contact Sally Watson)
- Output for COYU using splines is updated. It includes a test for extrapolation.

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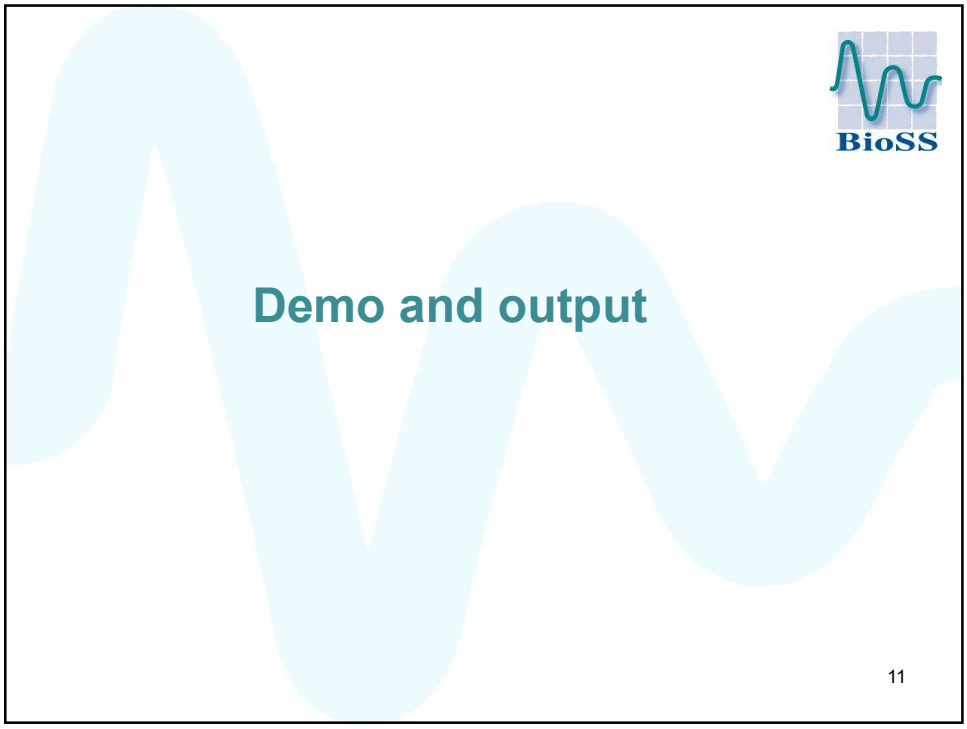

[End of Annex and of document]