

HARMONISATION IN DUS TESTING: EXCHANGE AND OBSERVATION OF APPLES FRUIT SAMPLES

RESEARCH & DEVELOPMENT PROJECT RELEVANT TO THE COMMUNITY PLANT VARIETY PROTECTION SYSTEM

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Other institutes involved:

- Bundessortenamt (DE)
- GEVES (FR)
- COBORU (PL)
- National Food Chain Safety Office (HU)
- UKZUZ (CZ)
- CIOPORA

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Executive Summary

Identical samples of fruits were exchanged between CPVO entrusted examination offices and described. Compiled results revealed differences existing in the method of observation of most characteristics of the CPVO apple protocol.

The harmonization in the observation of characteristics deserves improvement and the organisation of a meeting with DUS examiners is proposed as a follow up of this project in order to identify the different perspectives to assess characteristics. An agreement could be reached on a more clearly explained methodology that could appear in the forthcoming version of the technical protocol.



1. Introduction

The objective of this project was to organize an exchange of fruits between the 5 CPVO entrusted examination offices for apples, which could prepare a few identical samples of fruits and dispatch them to the other examination offices. Examination offices receiving the fruits will make the observations according to their usual procedures and results could be confronted. The exercise would bring to light differences that may exist:

- In the interpretation of the characteristic
- In the method of observation
- In the methodology of transformation of observations to notes

2. The work done

The examination offices dispatched fruits of the following varieties in January 2018:

- UKZUZ
 - Svatava
 - Karmina
 - Teser
 - Valstar
- Geves/INRA
 - Daliclass
 - Delflopion
 - Inored
 - PremA96
 - Sekzie
- Bundessortenamt
 - Pilot
 - Rewena
 - Fuji BC Nr 2
- Nébih
 - Rodonit
 - Karneol
 - Rosmerta
- COBORU
 - Idared
 - Juga
 - Rewena

As soon as they were in receipt of the fruits, examination offices observed characteristics 24 to 54 of the protocol. The CPVO centralized the results.



3. Results and discussion

The CPVO produced an excel file, with one sheet per variety including the description made by the respective examination offices (See Annex 1). In each of these sheets, a column was added calculating for each characteristic the maximum difference between notes attributed for QN characteristics. In case there are 3 notes difference or more, the cell appears in pink. It remains grey when there are 2 notes difference or less. Lines related to PQ characteristics are in yellow.

A sheet 'Overview' was created, compiling for each variety and each QN characteristic the maximum difference there may be between notes attributed by the various examination offices for a given characteristic and a given variety. The sum of these differences gives an indication on how differently a stage of expression is attributed between examination offices for each characteristic.

DUS Experts and DUS examiners met on 19 September in CZ in order to review and comment the results. Detailed minutes of the meeting are available in Annex 2.

The following remarks were made:

- an apparent lack of harmonization depends on the scale: for a characteristic with 3 stages of expression, the range of variation in the notes attributed by examination offices will be more limited.
- for QN characteristics, examination offices have all their own procedures to attribute notes based on their reference varieties and the range of variation of their collection. Some experts explained that they preferably use the reference varieties from the protocol but not necessarily.
- the influence of the environment on the expression of varieties is not linear. Some varieties show less variation in the expression of their characteristics over years than others. Ideally, reference varieties should vary to the same extent as the overall collection in order to minimize variations in variety descriptions: this requires that examination offices have already observed reference varieties over time. Another possibility is also to use more than one reference variety in order to mitigate the effect of the environment.
- Some experts prefer measurement to visual assessment, this should be foreseen in the future protocol as an alternative method of observation of characteristics.

For some characteristics, For some characteristics, the differences in the notes (numerical values) were striking and experts suggested that raw data be collected in order to have a better understanding of differences. An additional sheet with such raw data was added to the excel file in Annex 1 and a short analysis was sent around to experts (see Annex 3).

It was concluded that measurements seem to be made slightly differently by examination offices for a majority of characteristics.



4. Conclusion and possible follow up

For QN as for PQ characteristics, the project revealed that characteristics are often observed differently by DUS experts. It should be noted that this situation has no consequence on the assessment of distinctness since each examination office is supposed to have a complete reference collection of varieties with in house description. Descriptions established by one examination office are fully comparable and efficient to exclude / identify varieties of common knowledge from / for the DUS trial. Distinctness is ultimately assessed with side by side comparison and differences should be clearly observable.

The harmonization in the observation of characteristics deserves improvement. In order to achieve this objective, the different perspectives to assess characteristics should be identified and discussed among DUS examiners. An agreement could be reached on a more clearly explained methodology that could appear in the technical protocol. A possible follow up of this project is therefore the organisation of a meeting involving DUS examiners and in the premises of a testing station during which the aspects mentioned above should be discussed. Once an agreement has been reached, another - more limited - exchange of material focusing on varieties identified in this project as having the most diverse descriptions could be organized.



Annexes

Annex I. Excel table compiling all results

Annex II. Minutes of the meeting of 19. September 2018

Annex III. Short analysis of raw data provided to experts

Dear colleagues,

I would like to thank you all for your contributions. Please find enclosed the excel table I sent you so far with an additional sheet called 'raw data'. I collated the measurements you sent me for each variety and added a column with the calculation of the average for all varieties and the standard deviation.

It turns out that some of you sent me their measurements for quite some characteristics, thank you very much for this. I have tried to propose an analysis of the situation below. Please feel free to comment.

I would propose to conclude that measurements seem to be made slightly differently by examination offices for a majority of characteristics. Please feel free to comment on this finding. A follow up could be that each examination office reports at the next fruit expert meeting on the respective methodologies implemented to make these measurements. We will see whether there are actually differences and needs to update the apple protocol.

From an administrative point of view, the project has been extended until the end of the year. Those of you who have not provided me with an invoice can still do so by the end of December. I will also need to draft a report on the project by that deadline and I would be happy to receive comments to the present email and also to the report of our September meeting Aline sent you on 24. September (see first email below) **until the end of the month.**

Best regards from Santiago de Chile where the TWF will start tomorrow

Jean

25, 26: Fruit height, diameter: DE, FR & PL data seem to be quite harmonized. CZ & HU measurements seem to be significantly lower than other countries.

27: Fruit ratio height/diameter: DE, FR, HU & PL data seem to be quite harmonized. CZ ratio seem to be sometimes different, this may be a consequence of the observation mentioned above.

46: Fruit length of stalk: measurements seem to be diverse, it is likely that they are measured differently.

47: Fruit thickness of stalk: there seem to be some differences in measurements for countries which provided them, it is likely that they are measured differently.

48: Fruit depth of stalk cavity: there seem to be some differences in measurements for countries which provided them, it is likely that they are measured differently.

49: Fruit width of stalk cavity: there seem to be some differences in measurements for countries which provided them, it is likely that they are measured differently.

50. Fruit depth of eye basin: there seem to be some differences in measurements for countries which provided them, it is likely that they are measured differently.

51. Fruit width of eye basin: there seem to be some differences in measurements for countries which provided them, it is likely that they are measured differently.

