Ten years of European Union Proficiency Tests for Pesticide Residues in Fruits and Vegetables

Carmen Ferrer Amante, Cristián Valderrama, Amadeo R. Fernández-Alba
EU Reference Laboratory for Pesticide Residues in Fruits and Vegetables. University of Almería. Agrofood Campus of International Excellence (ceiA3)
Carretera de Sacramento s/n, La Cañada de San Urbano, 04120, Almería, Spain

e-mail: cferrer@ual.es

ABSTRACT

The European Union (EU) Reference Laboratory for pesticide residues in Fruits and Vegetables (EURL-FV) has been organizing a proficiency testing scheme annually since 2004. This scheme is specifically designed for the National Reference Laboratories (NRLs) and Official Control Laboratories (OCLs) responsible for pesticide residue control in the EU. The scheme gives additional value to the multiresidue qualitative and quantitative techniques used in routine analysis and facilitate the extension of the scope of the laboratories. The presentation is an overview of the EUPT-FV during 2014-2023, highlighting the challenges faced by participating laboratories and the significant achievements in sample extraction, data dispersion, and statistical evaluation.

Over the last ten years, the number of participating laboratories varied between 174 and 191 and more than 26000 results were evaluated (including false negatives). Furthermore, the distribution of z scores remained relatively consistent, with an average of 92% of satisfactory, 3% of questionable, and 5% of unsatisfactory results.

The huge sets of results have reinforced the adoption of the following two major practices: (i) the standard deviation for performance assessment (SDPA) set to 25% was proven to be fit-for-purpose; and (ii) a target expanded measurement uncertainty of 50% (=2*SDPA) is internationally accepted and widely used when reporting results for pesticide residue in fruits and vegetables analyses.

The PTs organized by the EURL-FV serve as a crucial platform for enhancing the proficiency and quality of pesticide residue analysis in fruits and vegetables, fostering a continuous improvement in analytical methodologies. The dedication and participation of NRLs and OCLs in these PTs contributes significantly to ensuring the safety and compliance of fruits and vegetables consumed in the EU.

Ten years of European Union Proficiency Tests for Pesticide Residues in Fruits and Vegetables

Carmen Ferrer Amante, Cristián Valderrama, Amadeo R. Fernández-Alba
EU Reference Laboratory for Pesticide Residues in Fruits and Vegetables. University of Almería. Agrofood Campus of International Excellence (ceiA3)
Carretera de Sacramento s/n, La Cañada de San Urbano, 04120, Almería, Spain

e-mail: cferrer@ual.es

ABSTRACT

The European Union (EU) Reference Laboratory for pesticide residues in Fruits and Vegetables (EURL-FV) has been organizing a proficiency testing scheme annually since 2004. This scheme is specifically designed for the National Reference Laboratories (NRLs) and Official Control Laboratories (OCLs) responsible for pesticide residue control in the EU. The scheme gives additional value to the multiresidue qualitative and quantitative techniques used in routine analysis and facilitate the extension of the scope of the laboratories. The presentation is an overview of the EUPT-FV during 2014-2023, highlighting the challenges faced by participating laboratories and the significant achievements in sample extraction, data dispersion, and statistical evaluation.

Over the last ten years, the number of participating laboratories varied between 174 and 191 and more than 26000 results were evaluated (including false negatives). Furthermore, the distribution of z scores remained relatively consistent, with an average of 92% of satisfactory, 3% of questionable, and 5% of unsatisfactory results.

The huge sets of results have reinforced the adoption of the following two major practices: (i) the standard deviation for performance assessment (SDPA) set to 25% was proven to be fit-for-purpose; and (ii) a target expanded measurement uncertainty of 50% (=2*SDPA) is internationally accepted and widely used when reporting results for pesticide residue in fruits and vegetables analyses.

The PTs organized by the EURL-FV serve as a crucial platform for enhancing the proficiency and quality of pesticide residue analysis in fruits and vegetables, fostering a continuous improvement in analytical methodologies. The dedication and participation of NRLs and OCLs in these PTs contributes significantly to ensuring the safety and compliance of fruits and vegetables consumed in the EU.

The huge sets of results have reinforced the adoption of the following two major practices: (i) the standard deviation for performance assessment (SDPA) set to 25% was proven to be fit-for-purpose; and (ii) a target expanded measurement uncertainty of 50% (=2*SDPA) is internationally accepted and widely used when reporting results for pesticide residue in fruits and vegetables analyses.

The PTs organized by the EURL-FV serve as a crucial platform for enhancing the proficiency and quality of pesticide residue analysis in fruits and vegetables, fostering a continuous improvement in analytical methodologies. The dedication and participation of NRLs and OCLs in these PTs contributes significantly to ensuring the safety and compliance of fruits and vegetables consumed in the EU.

The huge sets of results have reinforced the adoption of the following two major practices: (i) the standard deviation for performance assessment (SDPA) set to 25% was proven to be fit-for-purpose; and (ii) a target expanded measurement uncertainty of 50% (=2*SDPA) is internationally accepted and widely used when reporting results for pesticide residue in fruits and vegetables analyses.

The PTs organized by the EURL-FV serve as a crucial platform for enhancing the proficiency and quality of pesticide residue analysis in fruits and vegetables, fostering a continuous improvement in analytical methodologies. The dedication and participation of NRLs and OCLs in these PTs contributes significantly to ensuring the safety and compliance of fruits and vegetables consumed in the EU.

The huge sets of results have reinforced the adoption of the following two major practices: (i) the standard deviation for performance assessment (SDPA) set to 25% was proven to be fit-for-purpose; and (ii) a target expanded measurement uncertainty of 50% (=2*SDPA) is internationally accepted and widely used when reporting results for pesticide residue in fruits and vegetables analyses.

The PTs organized by the EURL-FV serve as a crucial platform for enhancing the proficiency and quality of pesticide residue analysis in fruits and vegetables, fostering a continuous improvement in analytical methodologies. The dedication and participation of NRLs and OCLs in these PTs contributes significantly to ensuring the safety and compliance of fruits and vegetables consumed in the EU.

The huge sets of results have reinforced the adoption of the following two major practices: (i) the standard deviation for performance assessment (SDPA) set to 25% was proven to be fit-for-purpose; and (ii) a target expanded measurement uncertainty of 50% (=2*SDPA) is internationally accepted and widely used when reporting results for pesticide residue in fruits and vegetables analyses.

The PTs organized by the EURL-FV serve as a crucial platform for enhancing the proficiency and quality of pesticide residue analysis in fruits and vegetables, fostering a continuous improvement in analytical methodologies. The dedication and participation of NRLs and OCLs in these PTs contributes significantly to ensuring the safety and compliance of fruits and vegetables consumed in the EU.

The huge sets of results have reinforced the adoption of the following two major practices: (i) the standard deviation for performance assessment (SDPA) set to 25% was proven to be fit-for-purpose; and (ii) a target expanded measurement uncertainty of 50% (=2*SDPA) is internationally accepted and widely used when reporting results for pesticide residue in fruits and vegetables analyses.

The PTs organized by the EURL-FV serve as a crucial platform for enhancing the proficiency and quality of pesticide residue analysis in fruits and vegetables, fostering a continuous improvement in analytical methodologies. The dedication and participation of NRLs and OCLs in these PTs contributes significantly to ensuring the safety and compliance of fruits and vegetables consumed in the EU.

The huge sets of results have reinforced the adoption of the following two major practices: (i) the standard deviation for performance assessment (SDPA) set to 25% was proven to be fit-for-purpose; and (ii) a target expanded measurement uncertainty of 50% (=2*SDPA) is internationally accepted and widely used when reporting results for pesticide residue in fruits and vegetables analyses.

The PTs organized by the EURL-FV serve as a crucial platform for enhancing the proficiency and quality of pesticide residue analysis in fruits and vegetables, fostering a continuous improvement in analytical methodologies. The dedication and participation of NRLs and OCLs in these PTs contributes significantly to ensuring the safety and compliance of fruits and vegetables consumed in the EU.