Facing analytical quality.

rolling proof 2019

Module cereals and pulses

Red lentils
P1903-RT

Summary

The entire report is available to the participants only.

Designed, realised and evaluated by

PROOF-ACS GmbH
Bremen, Germany

June 2019,

Dr. Birgit Schindler

rolling proof is developed to support laboratories in meeting the requirements of accreditation bodies. According to advisory document EA-4/18:2010 analytical laboratories are requested to establish a PT participation plan for accredited analytical methods. ***rolling proof*** is an on-going scheme of ring tests.

The module "cereals and pulses" of ***rolling proof*** is focused on the commodity group "high starch and/or protein content and low water and fat content" (SANTE 11813/2017, Annex A), which consists of the commodity categories

- dry legume vegetables/pulses (e.g. dried beans and lentils), and
- cereal grain and products thereof (e.g. grains, rice, breakfast cereals, bread).

With respect to the module "cereals and pulses" the ring tests of ***rolling proof*** are performed on a one test per year basis. The matrix of the test material is chosen of the commodity categories above.

In 2019, red lentils are selected as representative commodity of the commodity category "dry legume vegetables/pulses".

The module "cereals and pulses" covers all in all a minimum of 150 of the most relevant pesticides. The scope of pesticides covered by ***rolling proof*** is defined in a provided list. All pesticides are tested within a period of five years. Thus, the laboratories that take part in ***rolling proof*** are able to test their pesticide multi-methods for a large number of pesticides and a variety of matrices within one cycle of accreditation. However, it is up to the participants to join all tests of the 5-year programme of ***rolling proof***, or to book the tests individually.

The performance of laboratories in the test is evaluated according to:

- the correct *identification* of the spiked pesticides.
- the *comparability* of the results. The evaluation of the comparability is based on the z-score model. The z-score should be at least ≤ |2|. The comparability criterion is applied to 30 out of 33 pesticides. It is not applicable to 4,4`-DDD, azinphos-methyl, and sulfotep due to the limited number of reported results.
- the *trueness* of the results. The trueness is expressed as the coverage of the spiked level in %. The coverage should be at least between 70 and 120 % of the spiked level. The trueness criterion is applied to all 33 spiked pesticides.

Seven laboratories across three countries (Austria, Germany, and Spain) took part in the test.

The test material is prepared of organic red lentil flour. The raw material was tested for incurred residues and spiked with 33 pesticides, which are within the scope of rolling proof as well as linuron and metamitron.

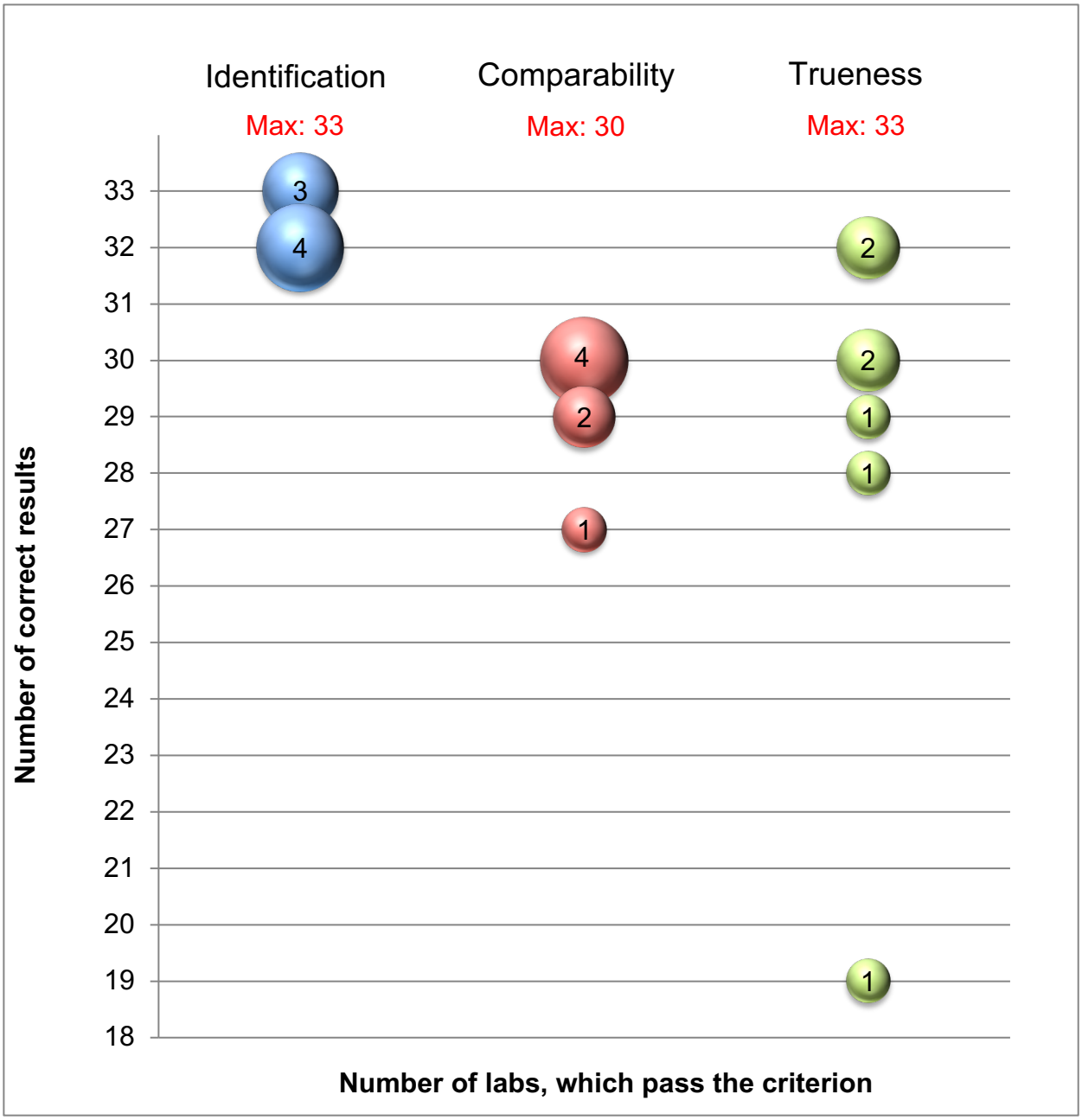
The analytical challenge is to identify and quantify 33 pesticides in the test material. The identity of the pesticides, the spiked levels and a summary of the overall performance of the laboratories are provided in the table below.

Summary of results

Pesticide	Spiked level [mg/kg]	Assigned value [mg/kg]	Total number of results	**Comparability criterion:** no. of participants, which pass the criterion (z-score ≤ |2|)	**Trueness criterion:** no. of participants which pass the criterion (70-120 % recovery of the spiked level)
2,4`-DDD	0.075	0.0664	7	7	7
4,4`-DDD	0.052	-	6	Not evaluated	4
Azinphos-methyl	0.037	-	6	Not evaluated	5
Bupirimate	0.065	0.0625	7	7	6
Chlorfenvinphos	0.044	0.0390	7	7	7
Dieldrin	0.025	0.0229	7	6	5
Dimethomorph	0.058	0.0582	7	7	7
Diniconazole	0.088	0.0945	7	7	6
Diuron	0.036	0.0371	7	5	5
EPN	0.095	0.0789	7	7	5
Ethion	0.047	0.0416	7	7	7
Fenarimol	0.045	0.0434	7	7	7
Fenazaquin	0.067	0.0681	7	7	6
Fluquinconazole	0.11	0.125	7	7	5
Hexaflumuron	0.062	0.0662	7	6	5
Imidacloprid	0.099	0.102	7	7	6
Isoproturon	0.039	0.0411	7	7	6
Methabenzthiazuron	0.074	0.0746	7	7	7
Metribuzin	0.10	0.0923	7	7	7
Monocrotophos	0.033	0.0294	7	7	7
Nuarimol	0.066	0.0649	7	7	7
Omethoate	0.072	0.0639	7	7	5
Penconazole	0.075	0.0770	7	6	6
Propyzamide	0.043	0.0381	7	7	6
Prosulfocarb	0.059	0.0559	7	7	6
Pyrazophos	0.064	0.0580	7	7	7
Quintozene	0.030	0.0255	7	7	6
Sulfotep	0.047	-	5	Not evaluated	5
Tebuconazole	0.11	0.102	7	7	7
Tefluthrin	0.055	0.0474	7	7	7
Tetradifon	0.035	0.0316	7	7	6
Thiabendazole	0.023	0.0236	7	7	7
Trifluralin	0.074	0.0627	7	7	5
*Linuron**	*0.090*	-	*4*	*Not evaluated*	*4*
*Metamitron**	*0.055*	-	*4*	*Not evaluated*	*4*

*The parameters linuron and metamitron are not within the scope of ***rolling proof***. Thus, the evaluation of linuron and metamitron is presented for information purposes only.

Summary of the performance of the laboratories:



Total No. of labs: 7