proof acs

rolling proof 2024
Module vegetables and fruits

Spinach – P2421-RT
Blueberry – P2422-RT

Summary

The ring test was designed, realised, evaluated, and authorised on behalf of PROOF-ACS GmbH by

Dr. Birgit Schindler
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Project coordinator

The report was approved by

Dr. Birgit Schindler

Participants with any comments or concerns related to this ring test are invited to contact:

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PROOF-ACS is a DAkkS accredited proficiency testing provider according to DIN EN ISO 17043:2010 (D-EP-22211-01-00). This ring test is covered by the scope of accreditation.

PROOF-ACS GmbH does not have any analytical laboratory facilities of its own. Homogeneity testing and stability testing are subcontracted to laboratories, accredited according to DIN EN ISO 17025. The subcontracted laboratory may also participate in the ring tests. If so, the laboratory is treated in the same way as other participants and the same rules of confidentiality apply.

rolling proof is developed to support laboratories in meeting the requirements of accreditation bodies. According to advisory document EA-4/18 G:2021 (1) analytical laboratories are requested to establish a PT participation plan for accredited analytical methods. *rolling proof* is an on-going scheme of ring tests.

Two commodity groups (according to SANTE 11312/2021v2, Annex A) are included in *rolling proof* - module "vegetables and fruits":
- vegetables and fruits (high water content),
- citrus fruits, small fruits and berries (high acid content).

Two test materials are provided related to the module "vegetables and fruits" in each year, one for each of the two commodity groups mentioned above.

In 2024, spinach and blueberry are chosen as matrices for *rolling proof* - module "vegetables and fruits".

A list of pesticides is provided to the participating laboratories, which defines the scope of pesticides, covered by *rolling proof*. The module "vegetables and fruits" covers all in all a minimum of 300 pesticides. All pesticides are tested within a period of six years. Thus, the laboratories that take part in *rolling proof* can test their pesticide multi-residue methods for a large number of pesticides and a variety of matrices within one cycle of accreditation.

It is up to the participants to join all tests of the 6-year programme of *rolling proof*, or to book the tests individually. In 2024, 16 laboratories across seven countries (Austria, Cyprus, Germany, Greece, Italy, South Africa, and Spain) took part in *rolling proof* module "vegetables and fruits". Eight laboratories booked both tests, P2421-RT and P2422-RT, while eight laboratories booked P2422-RT only. 15 labs reported results and are considered for evaluation.

The test materials were prepared of organic spinach resp. blueberries. The raw materials were homogenised, tested for incurred residues and spiked with pesticides thereafter.

rolling proof evaluates the performance of the laboratories 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 _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.

Test material spinach (P2421-RT)

The test material spinach was spiked with 34 pesticides. The analytical challenge was to identify and quantify all spiked pesticides. The identity of the pesticides, the spiked levels and a summary of the overall performance of the laboratories are provided in the table below.

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	0.077	0.0635	7	7	5
3-Hydroxycarbofuran	0.010	-	6	Not applicable	5
Acibenzolar-S-methyl	0.33	0.308	7	6	4
Aldicarb sulfoxide	0.072	0.0758	7	7	6
Azinphos-methyl	0.022	0.0219	7	6	6
Azoxystrobin	0.16	0.164	7	7	7
Benalaxyl	0.018	0.0174	7	7	7
Benfluralin	0.065	0.0615	7	7	7
Bifenazate	0.051	0.0469	7	7	5
trans Chlordane	0.033	0.0285	7	7	6
Chlorfenapyr	0.073	0.0708	7	7	7
Ditalimfos	0.019	-	7	Not evaluated	Not evaluated
Ethiofencarb	0.021	-	6	Not applicable	5
Etridiazole	0.054	-	7	Not evaluated	Not evaluated
Famoxadone	0.022	0.0209	7	7	6
Fenamiphos-sulfone	0.027	0.0274	7	7	7
Fluazifop (free acid)	0.061	0.0561	7	7	7
Fludioxonil	0.28	0.270	7	7	7
Fuberidazole	0.024	-	5	Not applicable	5
cis-Heptachlor epoxide	0.041	0.0381	7	7	7
Hexaconazole	0.025	0.0256	7	7	6
Isoprocarb	0.023	-	6	Not applicable	6
Lufenuron	0.033	0.0345	7	7	6
Metamitron	0.15	0.140	7	6	6
Methiocarb sulfone	0.086	0.0842	7	7	7
Methomyl	0.044	0.0417	7	7	7
Mevinphos	0.045	0.0417	7	7	7
Parathion-methyl	0.026	0.0222	7	6	6
Phoxim	0.034	0.0308	7	7	7
Pyridate	0.089	-	5	Not applicable	4
Quintozene	0.069	0.0611	7	7	7
Tecnazene	0.028	0.0271	7	7	6
TFNA	0.055	-	6	Not applicable	5
Zoxamide	1.2	1.04	7	6	6

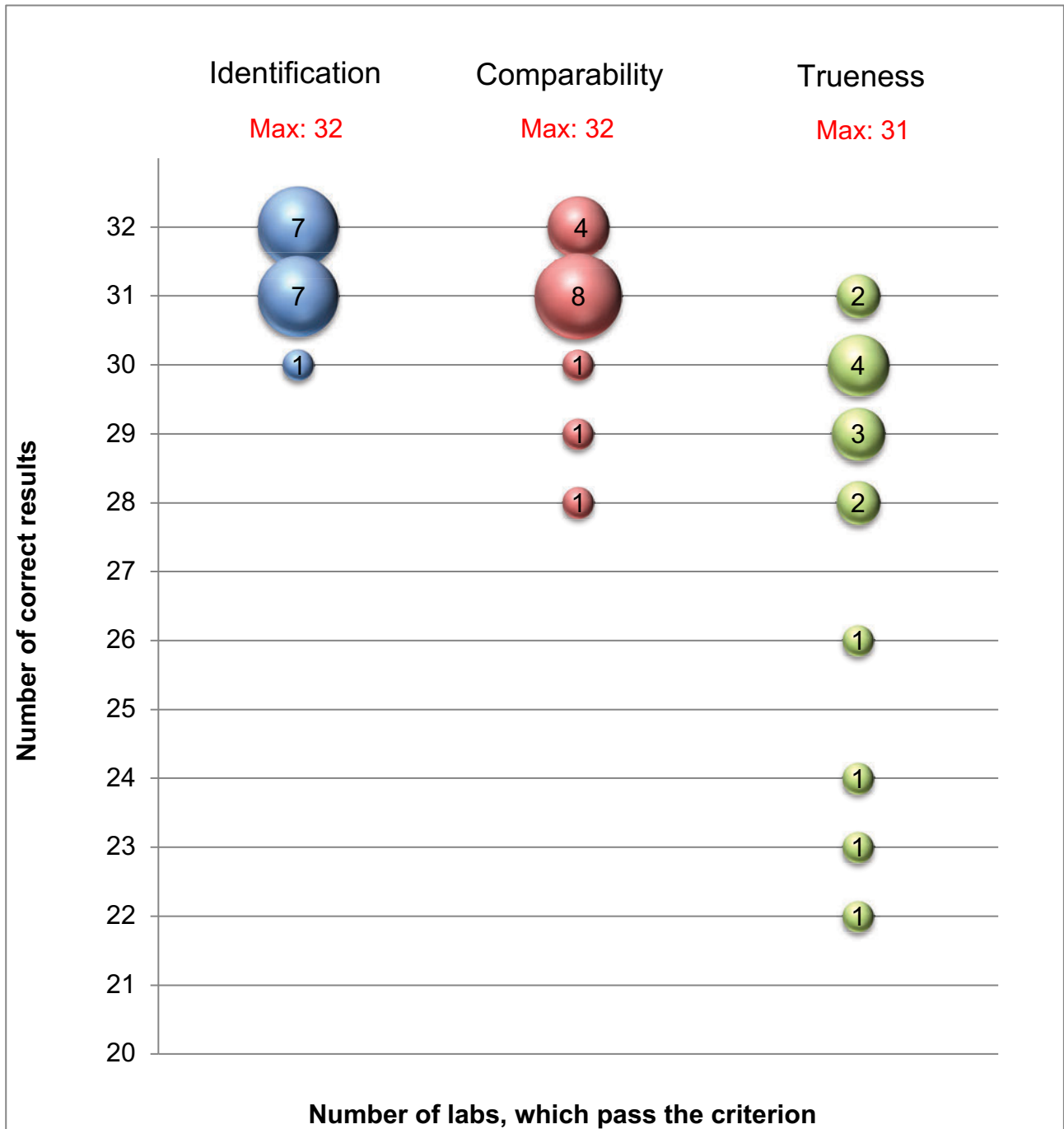**Spinach – Summary of the performances of participating laboratories:**
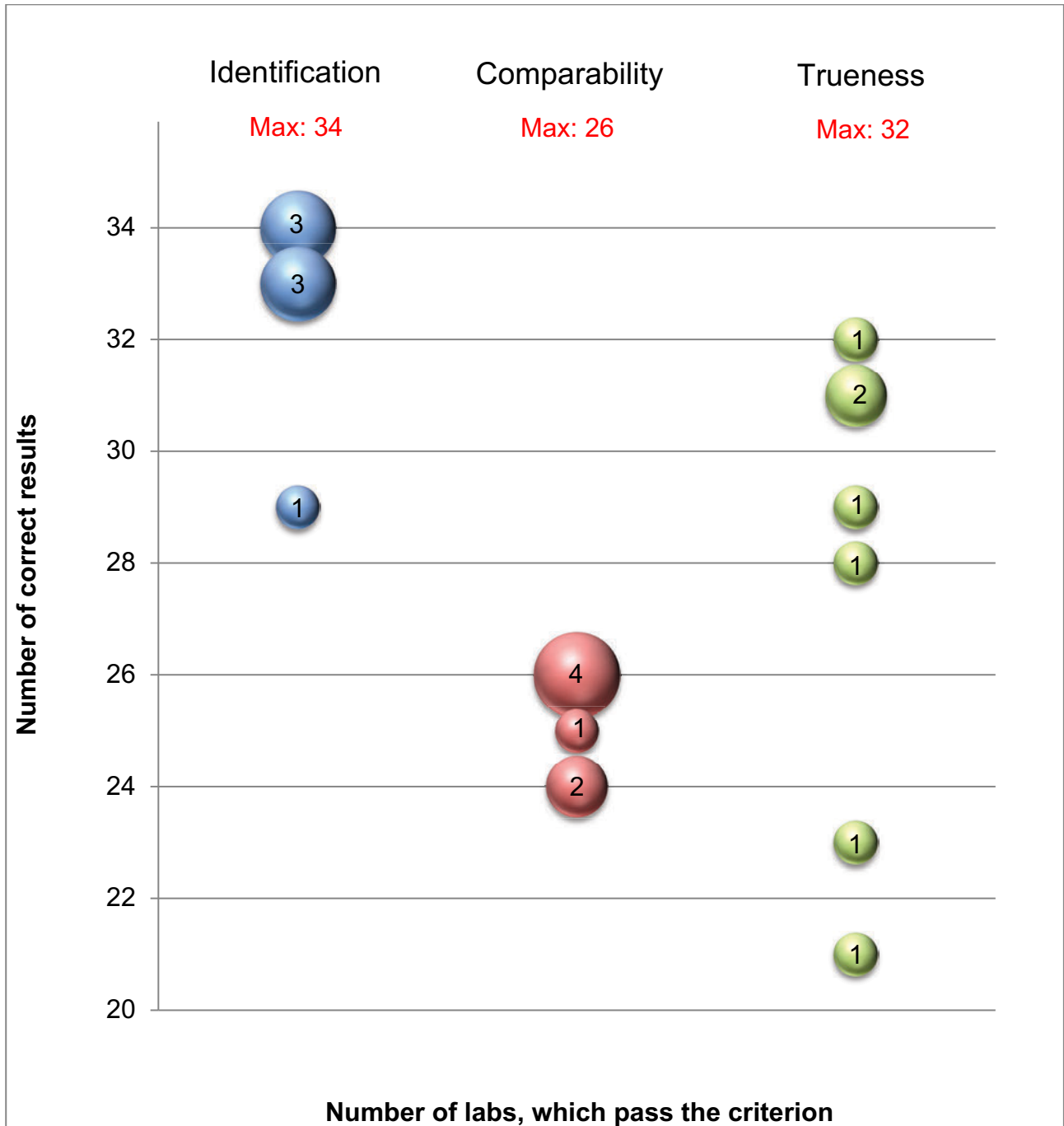
Total No of labs: 7

Test material blueberry (P2422-RT)

The test material blueberry was spiked with 32 pesticides. The analytical challenge was to identify and quantify all spiked pesticides. The identity of the pesticides, the spiked levels and a summary of the overall performance of the laboratories are provided in the table below.

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-DDE	0.027	0.0238	15	15	15
Aldicarb	0.045	0.0375	15	14	13
Atrazine	0.089	0.0782	15	15	15
Bentazone	0.055	0.0453	15	15	12
Bromophos-methyl	0.022	0.0199	15	15	15
Bromuconazole	0.042	0.0315	15	15	9
Bupirimate	0.23	0.221	15	15	14
Carbophenothion	0.044	0.0370	15	15	14
Chlozolinate	0.023	0.0193	15	13	13
Cyproconazole	0.077	0.0702	15	15	15
Demeton-S-methyl	0.021	0.0210	15	14	12
Dichlobenil	0.019	0.0161	15	15	13
Dieldrin	0.052	0.0451	15	14	13
Fenarimol	0.077	0.0664	15	15	14
Flufenoxuron	0.044	0.0427	15	15	15
Imidacloprid	0.27	0.245	15	15	15
Lenacil	0.19	0.174	15	15	15
Lindane	0.025	0.0226	15	14	13
Mecoprop (free acid)	0.12	0.107	14	14	13
Mepanipyrim	0.044	0.0366	15	15	14
Metconazole	0.21	0.189	15	15	15
Methiocarb sulfoxide	0.092	0.0849	15	15	13
Nuarimol	0.022	0.0191	15	15	15
Pyrifenox	0.021	0.0181	14	14	13
Spiromesifen	0.025	0.0238	15	15	14
Tebuconazole	0.17	0.151	15	15	15
Terbacil	0.088	0.0815	15	14	13
Thiophanate-methyl	0.081	0.0355	15	14	Not applicable
Tolylfluanid	0.033	0.0310	15	15	14
Trichlorfon	0.017	0.0174	14	14	14
Triclopyr	0.029	0.0260	14	14	13
Triforine	0.026	0.0226	10	10	9

Blueberry – Summary of the performances of participating laboratories: