**Rule Proposal #12**

**1. PURPOSE OF PROPOSAL:**

The purpose of this proposal is to revise reporting requirements of germination test results on the Report of Analysis (ROA). For the germination test, current Rules state that the percentage of normal seedlings, hard seed (if applicable), and dormant seed (if applicable) must be reported (AOSA Rules Vol. 1 Section 15.k). For non-applicable components, N/A is included on the report. This proposal adds the requirement of including the percentage abnormal seedlings and dead seeds to the ROA, so that all applicable germination components are reported.

Reporting all germination test components is recommended for transparency and ease of interpretation by ROA recipients. Excluding both abnormal seedling and dead seed results can lead to misinterpretation of the germination test results, frequently obscuring important information to seed producers and consumers. Revising reporting requirements is necessary for a complete picture of germination behavior of the seed lot, improving germination test reporting uniformity among labs, and enhancing test transparency to the Seed Industry and the Seed Testing Industry.

**2.** **PRESENT RULE:**

**SECTION 15: REPORT OF ANALYSIS (ROA)**

Laboratory reports of analysis that indicate laboratory testing was performed in accordance to the AOSA Rules for Testing Seeds are required to include, but not be limited to, the following information:

…

k. When a germination test is conducted the following information must be reported under Germination Test:

(1) Percentage of normal seedlings as a whole number (refer to section 6.7).

(2) Percentage of hard seed, if applicable, as a whole number (refer to section 6.7).

(3) Percentage of dormant seeds, if applicable, as a whole number (refer to section 6.7).

…

**3.** **PROPOSED RULE[[1]](#footnote-1):**

**SECTION 15: REPORT OF ANALYSIS (ROA)**

…

k. When a germination test is conducted the following information must be reported under Germination Test:

(1) Percentage of normal seedlings as a whole number (refer to section 6.7).

(2) Percentage of hard seeds, if applicable, as a whole number (refer to section 6.7).

(3) Percentage of dormant seeds, if applicable, as a whole number (refer to section 6.7).

(4) Percentage of abnormal seedlings as a whole number (refer to section 6.7).

(5) Percentage of dead seeds as a whole number (refer to section 6.7).

…

**4. HARMONIZATION AND IMPACT STATEMENT:**

**A**. If adopted, this proposal increases harmonization with ISTA:

**“ISTA Rules Section 5. The Germination Test; 5.9 Reporting results:**

The result of a germination test must be reported in the spaces provided as follows:

…

* the percentages, calculated to the nearest whole number (5.8.2), of normal seedlings, hard seeds, fresh seeds, abnormal seedlings and dead seeds. If the result for any of these categories is found to be zero, it must be reported as ‘0’.

…”

**B**. If adopted, this proposal may increase harmonization with Canadian Methods & Procedures (M&P). Although M&P rules do not include a reporting requirement for percentage abnormal seedlings, M&P rules include a requirement that reported percentages must equal 100%:

“**Canadian Methods & Procedures section 4.0 Germination; 4.11 Calculation and reporting of germination results; 4.11.5 Reporting of results:**

c. The germination result, as a percentage germination or for kinds listed in Section 4.10.7, percent germination plus hard seeds calculated to the nearest whole number (0.5 is taken to the higher figure) except for values between 99.5% and 99.9% which should be dropped to 99%. The sum of the percentages reported must be 100. (See Section 4.10.7, 4.11.1, 4.11.2, 4.11.3 and 4.11.4.a).”

**C**. Officially, if adopted, this proposal will not improve harmonization with the Federal Seed Act; reporting requirements already differ between FSA and AOSA Rules. But as a matter of current practice, the USDA SRTD Seed Laboratory routinely reports the percentage of abnormal seedlings and the percentage of dead seeds on their ROA voluntarily.

**5. SUPPORTING EVIDENCE:**

Incomplete reporting of germination test results can lead to inappropriate assessments and interpretation of germination performance of the seed lot, and sound decisions based on results may not be possible. While percentage normal seedlings results convey all necessary information for high-germination seed lots (95-100%), the same is not true for seed lots with lower germination. The examples below demonstrate only some consequences of incomplete reporting, i.e., when neither abnormal nor dead results are included.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Germination component (%)** | | | | |
|  |  | **Normal** | **Hard** | **Dormant** | **Abnormal** | **Dead** |
| **Example 1**  Different versions of ROA | Incomplete results | 82 | 2 | N/A | - | - |
| Complete results | 82 | 2 | N/A | 15 | 1 |
| Acceptable results† | 82 | 2 | N/A | - | 1 |
| **Comments** | Sample tested following seed treatment. In most cases, improper seed treatment produces abnormal rather than dead seeds. Recipient of incomplete ROA would not have enough information to suggest possible effects of seed treatment. | | | | | |
|  | | | | | | |
| **Example 2**  Different versions of ROA | Incomplete results | 82 | N/A | N/A | - | - |
| Complete results | 82 | N/A | N/A | 2 | 16 |
| Acceptable results | 82 | N/A | N/A | 2 | - |
| **Comments** | Same germination percentage as Example 1, but tests on an inventory sample (2-3 years old) after seed treatment. Incomplete ROA does not allow the recipient to judge whether the decrease in germination was more likely due to age (usually manifested as a high number of dead seeds) or seed treatment. | | | | | |
|  | | | | | | |
| **Example 4**  Different versions of ROA | Incomplete results | 99 | N/A | N/A | - | - |
| Complete results | 99 | N/A | N/A | 0 | 1 |
| Acceptable results | 99 | N/A | N/A | - | 1 |
| **Comments** | High germination sample; both complete and incomplete ROA convey the same information. | | | | | |
|  | | | | | | |
| **Example 3**  Same sample tested in 2 labs | Lab 1 | 84 | N/A | 2 | - | - |
| Lab 2 | 94 | N/A | 1 | 5 | 0 |
| **Comments** | Incomplete ROA from Lab 1 indicated 84% germination; sample retested in Lab 2 resulted in 94% germination and 5% abnormals. The 10% germination difference between labs could be due to either abnormal, dead or both results. Because ROA of Lab I is incomplete, determining which germination components differ and possible reasons for lack of uniformity are not possible. | | | | | |

†Acceptable: one component (abnormal or dead) is not reported but can be determined by subtraction.

6. **SUBMITTED BY:**

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7. **DATE SUBMITTED:**

October 14, 2022

1. Sub-section numbering and sequence may change if other proposed ROA requirements are adopted. [↑](#footnote-ref-1)