Appendix H

Association of Official Seed Analysts (AOSA)

Section 12: Mechanical Seed Count

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ASSOCIATION OF OFFICIAL SEED ANALYSTS

SECTION 12: MECHANICAL SEED COUNT

The following method shall be employed when using a mechanical seed counter to determine the number of seeds contained in a sample of soybean (*Glycine max*), corn (*Zea mays*), wheat (*Triticum aestivum*) and field bean (*Phaseolus vulgaris*).

12.1   Samples.

Samples for testing shall be of at least 500 grams for soybean, corn and field beans and 100 grams for wheat and received in moisture proof containers. Samples shall be retained in moisture proof containers until the weight of the sample prepared for purity analysis is recorded.

12.2   Seed counter calibration.

The seed counter shall be calibrated daily prior to use.

(a) Prepare a calibration sample by counting 10 sets of 100 seeds. Visually examine each set to insure that it contains whole seeds. Combine the 10 sets of seeds to make a 1,000 seed calibration sample. The seeds of the calibration sample should be approximately the same size and shape as the seeds in a sample being tested. If the seeds in a sample being tested are noticeably different in size or shape from those in the calibration sample, prepare another calibration sample with seeds of the appropriate size and shape. Periodically re-examine the calibration samples to insure that no seeds have been lost or added.

(b) Carefully pour the 1,000 seed calibration sample into the seed counter. Start the counter and run it until all the seeds have been counted. The seeds should not touch as they run through the counter. Record the number of seeds as displayed on the counter read out. The seed count should not vary more than ±2 seeds from 1,000. If the count is not within this tolerance, clean the mirrors, adjust the feed rate and/or reading sensitivity. Rerun the calibration sample until it is within the ±2 seed tolerance. If the seed counter continues to fail the calibration procedure and the calibration sample has been checked to ensure that it contains 1,000 seeds, do not use the counter until it has been repaired.

12.3   Sample preparation.

Immediately after opening the moisture proof container, mix and divide the submitted sample, in accordance with section 2.2, to obtain a sample for purity analysis and record the weight of this sample in grams to the appropriate number of decimal places (refer to section 2.3 a). Conduct the purity analysis to obtain pure seed for the seed count test.

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RULES FOR TESTING SEEDS

12.4   Conducting the test.

After the seed counter has been calibrated, test the pure seed portion from the purity test and record the number of seeds in the sample.

12.5   Calculation of results.

Calculate the number of seeds per pound to the nearest whole number using the following formula:

$$\text{Number of seeds per pound} = \frac{453.6 \text{ g/lb} \times \text{no. of seeds counted in d.}}{\text{weight (g) of sample analyzed for purity}}$$

12.6   Tolerances for results from different laboratories.

Multiply the labeled seed count or first seed count test result by four percent for soybean samples, two percent for corn (round, flat or plateless) samples, five percent for field bean samples and three percent for wheat samples. Express the tolerance (the number of seeds) to the nearest whole number. Consider the results of two tests in tolerance if the difference, expressed as the number of seeds, is equal to or less than the tolerance.

Example:

Kind of seed: Corn
Label claim (1st test): 2275 seed/lb.

Lab Test (2nd test):   Purity working weight = 500.3 g
                        Seed count of pure seed = 2479 seeds

$$\text{Number of seeds per pound} = \frac{453.6 \text{ g/lb} \times 2479 \text{ seeds}}{500.3 \text{ g}} = 2247.6 \text{ seeds/lb}$$

Rounded to the nearest whole number = 2248 seeds/lb

Calculate tolerance value for corn:

multiply label claim by 2%
2275 seeds/lb × 0.02 = 45.5 seeds/lb;
rounded to the nearest whole number = 46 seeds/lb

Determine the difference between label claim and lab test:

2275 seeds/lb – 2248 seeds/lb = 27 seeds/lb

The difference between the lab test (2nd test) and the label claim (1st test) is less than the tolerance (27 < 46); therefore, the two results are in tolerance.