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SEED QUALITY EVALUATION METHODS

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Seed quality evaluation methods will be discussed during a tour of the I.S.U. Seed Testing Laboratory. The following discussion of seed quality is provided as background or reference information.

The importance of quality seed stocks is often taken for granted in U.S. agriculture. High quality seed supplies of the major crops have evolved through the competitive nature of the U.S. seed industry. However, occasionally an emergence, contamination, or seed quality question arises. To help answer these seed quality questions it is useful to understand seed evaluation methods and labeling requirements.

Seed Laws

The U. S. seed industry is regulated by seed laws at the federal and state levels. These laws are primarily "truth-in-labeling laws" designed to inform the buyer. Bags and other seed containers of agricultural seed must bear an "analysis label" with the information required by federal and state laws. Most of this information can be obtained by three standardized tests (purity, germination and noxious weed examination) conducted by seed laboratories.

Standardized Tests

The methods used in U.S. seed laboratories are prescribed by the Association of Official Seed Analysts in their "Rules for Testing Seeds".

Purity Analysis - Determines percentage of pure seed, inert matter, other crop seed, and weed seed present in the sample submitted for analysis. Identification is made of the other crop and weed seeds found and reported at their respective rate of occurrence.

Germination Analysis - Determines percentage of normal seedlings that develop under ideal growing conditions. The percentage of hard seed or dormant seed also is determined and reported.

Noxious Weed Examination - Determines rate of occurrence for any prohibited (primary) noxious weed in the submitted sample. The presence of weeds noxious to Iowa or weeds noxious to other states can be determined.

Typical Analysis Label

SELLER: IA SEEDS INC.		99.50	% PURE SEED
VARIETY & KIND:	DON OATS	.10	% CROP SEED
GROWN IN:	IA	.25	% INERT
LOT NUMBER:	91-1	.15	% WEED SEED
SEC. NOX. WEEDS:	NONE PRESENT	90	% GERMINATION
		0	% HARD SEED
NET WEIGHT	72 LBS.	12/91	DATE TESTED

Special Tests

These tests are not standardized and results obtained may vary between laboratories. The tests explained below are some of the most commonly used special tests.

Accelerated Aging - Involves pretreating seed at high relative humidity and 41 C (105 F) prior to germination testing at 25 C (77 F) for seven days. This test is commonly used to estimate potential emergence of soybeans under stressful field conditions. This test should be conducted in conjunction with the standard germination test to help determine the seed quality level.

Cold test - This is a test to determine how well corn seed will emerge if planted under unfavorable field conditions. The seed is planted in a nonsterile sand-soil mixture and placed in a 10 C (50 F) chamber for seven days. The test is then continued in light at 25 C (77 F) for an additional seven days.

Tetrazolium test - A quick test to estimate potential germination usually completed within 24 to 48 hours. The tetrazolium test is not recognized as official for labeling purposes.