Alfalfa Seedling Emergence from Seed Lots Varying in Origin and Hard Seed Content

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During the past year or two there has been considerable unrest in the alfalfa seed trade due to advertising which suggests that the hard seed content in alfalfa seed lots is highly detrimental to the success of the seed in the field. Since new techniques and sources of alfalfa seed production have recently been developed, it seemed worthwhile to reinvestigate this old problem.

REVIEW OF LITERATURE

Papers (2, 3, 4, 6, 7, 8, 9) and references (1, 5) summarize many of the investigations of hard seed. It has been suggested repeatedly that a reasonable percentage of hard seed is probably at least as much an advantage as a disadvantage, agronomically speaking. The practice of scarifying alfalfa seed, common perhaps 30 years ago, almost disappeared following articles that showed that such seed lost rapidly in viability. It has been suggested frequently that a sample containing a considerable percentage of hard seed tended to maintain viability longer than a sample low in hard seed.

MATERIALS AND METHODS

Through the courtesy of the Crop Improvement Secretaries of several of the alfalfa seed-producing states, as well as with the assistance of C. S. Garrison, and various seedsmen, 190 lots of alfalfa seed were obtained. In almost every case, each seed lot was furnished, showing the approximate date of harvest, cultural practices, etc.

Several varieties were represented with several samples of each. Most of the seed lots were certified seed, a few were foundation, and the Michigan lots were ordinary commercial samples. Among the lots of seed were several that were picked by hand and hand threshed, furnished by C. M. Rincker of Wyoming, and L. E. Arnold, of California. All except 46 lots were 1953, and only 21 lots were older than 1951 seed.

Samples in each case consisted of 100 seeds. The weight of 100 seeds was determined. Laboratory germination of all samples was carried out during April and May, 1954, and October and November. Various lots were planted in the field at a depth of about 1/4 inch, on April 9, May 4, June 1, July 1, Sept. 1, and Oct. 1, 1954. Seedlings were usually pulled, within a few days of emergence, appearing to be essentially complete. Counting of the April, May, June, and July plantings stopped on August 26.

EXPERIMENTAL RESULTS

April plantings.—Sixty samples represented in the test, were planted April 9 in rows about 1/4 inch deep. Lots were selected without regard for hard seed content, since these figures had not yet been obtained.

There was great variation among the lots of germination, varying on April 23 from 5 to 78 seedlings.

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