EFFECT OF COLOR OF SEED, OF SCARIFICATION, AND OF DRY HEAT ON THE GERMINATION OF ALFALFA SEED AND OF SOME OF ITS IMPURITIES

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The color and the plumpness of alfalfa seed greatly influence its market value. It is generally accepted that bright, plump seed of an olive-green color is better than discolored seed of any sort. Lack of information as to just how much better it is, and wherein this superiority lies, was the circumstance which gave rise to the studies here reported. Between 1921 and 1925 a rather large number of seed studies were conducted, chiefly in an incidental manner, on which account the work has been spread over a longer period than might otherwise have been necessary.

The presence of dodder seed \( (Cuscuta \text{ sp.}) \) also greatly influences the selling value of commercial alfalfa seed. Its presence is almost entirely due to careless cultural methods, but it does nevertheless occur in seed, and once there the large-seeded variety cannot be economically removed with completeness by any known method. The seeds of Russian thistle and of Atriplex tumbleweed are also both prevalent. The possibility of killing these weed seeds with dry heat of such a degree that the alfalfa seed is uninjured thereby is also considered in a preliminary manner.

EFFECT OF COLOR OF ALFALFA SEED

PREVIOUS STUDIES

Certain phases of the relationship of seed color to germination strength were observed in Colorado previous to 1896 by Headden \((5)\) who tested the germination of different qualities of alfalfa seed. Prime seed germinated from 93 to 99\% and screenings of first quality from 55 to 70\% as compared with about 38\% for both second and third quality screenings. The number of prime seed to the gram was between 450 and 500.

At Iowa it was reported by Miller and Pammel \((9)\) that large alfalfa seed gave more vigorous plants than did small alfalfa seed. The experimental evidence, however, was too meager to be conclusive.

Pammel and Buchanan \((10)\) shortly afterward observed a general difference between plump and shrunken alfalfa seed germinated in

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\(^1\)Contribution from the Department of Agronomy, Utah Agricultural Experiment Station, Logan, Utah. Received for publication April 21, 1926.

\(^2\)Agronomist.

\(^3\)Reference by number is to "Literature Cited," p. 760.

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