Method of Germinating Segmented Sugar Beet Seed Used by the Great Western Sugar Company

H. B. SAXTON[1]

THE METHOD used by The Great Western Sugar Company in laboratory germination tests of segmented sugar beet seed is not unlike procedures used by other seed-germinating laboratories (1,2,3).[2]

The original sample of segmented sugar beet seed received from the segmenting station is reduced by the use of the Boerner Sampler. Small particles are rejected by screening the reduced sample over a 10-mesh sieve, having openings of about .075 inch. No further rejection of seed particles is made. Four Boerner divided portions of about 100-seed particles are made from the screened portion of the reduced sample. One hundred seed particles are counted, without selection, from each portion.

The counted seeds are soaked for 2 hours in running tap-water in a Utah-Idaho seed washer (2). The baskets are removed from the seed washer and the seed is dried somewhat by placing the baskets on a folded towel. Germination is done in depressions in folded wet blotters (6 inches by 9½ inches) in various makes of seed germinators at 27 degrees to 30 degrees centigrade for a period of 10 days. Care is taken to add just enough water to the blotters to maintain a dark color; excess free water is avoided.

The sprouts are counted each day after the second for 8 consecutive days. At each count the normal sprouts are removed from the seed particles. Seed units producing single sprouts are placed on a second blotter for identification and left for future examination to see if they will become seed particles producing double sprouts. Doubles are rejected at the time they are counted and a record of them is kept.

In reporting the germination of a sample, the following information is included: Number of seedballs per pound, number of germinating seedballs per pound, and percentage of the germinating seedballs which show normal single sprouts as an average of 4 samples of 100-seed particles each. For computing the number of seedballs per pound, 1/40 of a pound of the screened seed is weighed and counted as a basis for determining the seedballs per pound. For segmented seed the following types of sprouts are considered abnormal and are not counted:

1.—Cotyledons appear first.

2.—Cotyledons and root appear at the same time.

[1]Chief Chemist, The Great Western Sugar Company, Longmont, Colorado.

[2]The numbers in parentheses refer to literature cited.

3.—Tip of root and cotyledons remain fixed in the seed particle and the hypocotyl shows as a loop out of the seed particle. Such are left on the blotter and are considered normal if the root tip emerges.

4.—Root tip broken off.

Trouble with mold may sometimes be controlled by a thorough cleaning of the germinator and sun-drying the trays. When this fails the washed seed may be soaked for 5 minutes in a solution of Lignasan containing 1 part Lignasan to 10,000 parts water before placing in the germinator.

Literature Cited

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