

and the number of each species found in the weighed samples is recorded. The number of weed seeds per pound is then calculated.

In making a test for vitality the seed is drawn from pure seed that has been thoroughly mixed for the purpose. For each test two hundred seeds are used. These are put between folds of blotting paper and placed in a Standard Seed Germinator—an apparatus specially designed for this work and such that the degree of heat, and supply of air and moisture are under the control of the operator. After twenty-four hours the number of seeds that have germinated in each sample is determined and recorded. This is repeated each day while the test lasts. The times are, for Clover, ten days; and, for Timothy fourteen days. Each test is conducted in duplicate, under identical conditions, and when the duplicates vary more than 6 per cent they are discarded and a fresh test made.

It was with a view to awaken an interest in the importance of good seed and to direct attention from time to time to the evils and abuses connected with the seed trade that a Seed Laboratory was established. In order to obtain accurate information regarding the condition of the trade in grass and clover seed circular letters were sent to Farmers' Institute workers, secretaries of Agricultural Associations, and to individual farmers asking them to secure and forward to the Seed Laboratory one-half pound samples of grass and clover seeds that were offered for sale in the locality where they lived. Five hundred and thirteen samples were received and analyzed for both purity and vitality. With each sample of seed, information was inclosed giving the place at which and the dealer by whom it was sold, the price per pound or per bushel and the name of the wholesale seed firm from whom it had been obtained.

TIMOTHY.

Timothy (*Phleum pratense*) is the most common grass seed on the market in Canada. Fresh, well ripened seed has a silvery white appearance which renders the detection of impurities a very easy matter. A lack of luster is an indication of age, although the seed is very often discoloured by wet at time of harvest. Showery weather after the seed is ripe has a tendency to loosen the glumes and, in consequence, Timothy that is exposed to wet is apt to produce a large proportion of hullless seed.

Hullless seeds are usually the largest fully ripened seeds which have lost their glumes during the process of threshing. When fresh, they possess a high degree of vitality, but the vitality and vital energy of seed with hulls on is retained for a longer period because of the protecting glumes.

Although but few Canadian farmers make a specialty of growing Timothy seed in quantity, many farmers in the province of Ontario and Quebec reserve from one to ten acres of timothy from their hay crop which is allowed to ripen and is cut, tied in sheaves, and threshed with the ordinary grain crops. It is from these small lots that the bulk of the supply of home grown seed is obtained.

The weight per measured bushel of Timothy seed varies according to its quality: the legal standard is 48 pounds. This law which provides that each bushel of Timothy seed sold in Canada shall consist of 48 pounds is frequently violated by local seed dealers, many of whom supply only 45 pounds per bushel to the farmer, though when getting their supply from the wholesale seed houses they make sure of getting legal weight.

The cost of seeding a field to Timothy is small even with the best quality and highest priced seed. One pound contains about 1,350,000 seeds, and if sown at the rate of five pounds per acre, 1,400 seeds are provided for each square yard of land. If evenly sown on soil that is in good condition, and the weather be favourable for rapid growth, a small amount of seed will suffice, but under ordinary conditions in general farm practice a comparatively small percentage of the seed sown produces plants which come to maturity.

The following tables show a summary of the results of the analyses of samples of Timothy seed that were offered for sale by local dealers in the different provinces of Canada in the spring of 1902.