V. SAMPLING OF SEEDS FOR TESTING

No matter how efficiently and well a purity analysis or germination test is carried out, it is of little value unless the actual sample examined is truly representative of the seed lot as a whole. By 'lot' is meant a uniformly blended quantity of seed, whether in sacks or in some bulk container. The aim of sampling as quoted in the I.S.T.A. Rules (para 2.1) is as follows :

"Ordinarily the quantity of seed tested is minute compared with the size of the seed lot which it is supposed to represent. To obtain uniform and accurate results in seed testing it is essential that the sample be taken with care and in accordance with the methods set forth in the Rules. No matter how accurately the technical work is done, the results can only show the quality of the sample submitted for analysis ; consequently, every effort must be made to ensure the samples sent to the analyst do, in fact, accurately represent the composition of the lot in question. Likewise, in reducing the sample in the laboratory, every effort must be aimed at getting a working sample that is representative of the sample submitted".

A seed lot can never be completely homogenous, because of the natural variations in the field from which the seed was harvested. The degree of homogeneity of the seed depends largely on the various operations it receives after harvest. Even within a bag it will not be homogoneous because the impurities may separate into layers in the process of filling the bag. Neverthless, for sampling purposes a reasonable degree of homogeneity must be assumed.

General Procedures

The I.S.T.A. Rules (Para. 2) prescribe the various techniques to be used in sampling to provide a representative sample from a lot.

Briefly the Rules prescribe :

1. The rate of sampling, i.e. how many bags need to be sampled or how many samples should be taken from a bulk specified as the bulk sample.
2. The type of sampler to be used.
3. The minimum weights of a sample to be submitted for analysis, which vary with the size of the seed being sampled—referred to as submitted sample.
4. The minimum weight of seed to be examined for a purity analysis, again depending on the size of the seed—the working sample. The working sample should be approximately 2,500—3,000 seeds —the new I.S.T.A. tables are based on 2,300 for chaffy grasses and 2,750 for other seeds.
5. The sampling methods which may be used to take the "Submitted Sample" from the "Bulk Sample" and in the laboratory, to take the "Working Sample" from the "Submitted Sample".

The methods recommended for dividing a sample are as follows :

(a) An efficient mechanical divider, such as the Boerner or Gamet, one of which is available in seed testing laboratories.

(b) The random cups method.

The I.S.T.A. Rules (para 2.3.3) prescribe the sampling intensities for bulk and bagged lots of seed as follows :

Bulk Sampling

When sampling seed lots stored in bulk (heaps, bins, wagons, etc.) (Fig. 49) or streams of seeds during processing operations the following sampling intensity should be regarded as a minimum requirement for obtaining the "bulk sample".

(a) up to 500 kg.....at least 5 individual samples except for very small lots (50 kg.) where a smaller number of samples is sufficient, but not less than, 3 samples need be taken.

(b) of 501—3,000 kg. .....one individual sample for each 300 kg., but not less than 5 individual samples.

(c) of 3,001—20,000 kg.....one invididual sample for each 500 kg., but not less than 10 individual samples.

For seed in bulk the individual samples should be distributed at random all over the bulk and the samples drawn from varying depths.

FIG. 49—*A long double tube trier is useful when sampling heaps of uncleaned seed.*

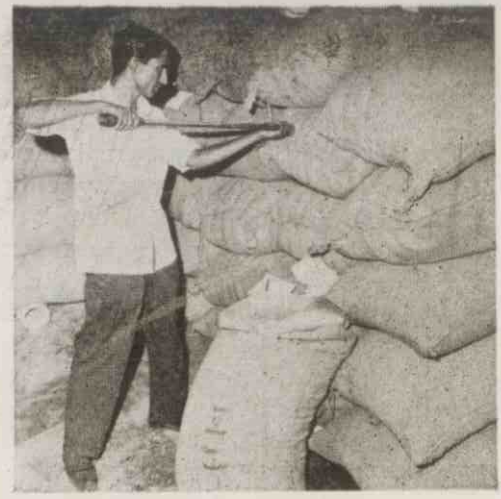

FIG. 50—*Bag triers can be inserted carefully between the threads of gunny bags without breaking them when sampling.*

Bag sampling

For seed lots in bags (Figure 50) or other containers the following sampling intensity should be regarded as a minimum requirement :

(d) up to 5 containers	sample each container but always take at least 5 individual samples.
(e) from 6 to 30 containers	sample at least one in every three containers but never less than 5.
(f) 31 containers or more	sample at least one in every five containers but never less than 10.

Unless doubt exists about the homogeneity of a lot, all such primary samples should be combined to make a composite sample of the lot for submitting to the seed testing laboratory. If the individual or primary samples are not sufficiently homogenous they may be sent to the laboratory for a heterogeneity test as described by the I.S.T.A. (para 12).

Sampling Records

Information submitted with the sample should include the following:

1. Date sampled
2. Who sampled seed
3. Name and address of sender
4. Kind and hybrid or variety
5. Origin or class of seed
6. Sample designation or lot number
7. Quantity of seed in lot
8. Kind of tests desired : Germination, Purity or Moisture.

Despatch of samples

Samples sent by post should be securely tied. Sealing is desirable, if possible. An alkathene bag holding a sample for moisture test should be included with the major sample if this test is desired. Cotton or jute bags, heavy cardboard boxes or other similar containers are satisfactory. Be sure the container is clean before putting a sample for test in it.

These seed samples may be drawn in a quality seed program by seed producers, seed merchants, farm managers, plant breeders, extension workers and seed inspectors for sending to seed testing laboratory. Seed inspectors will draw seed certification and seed law enforcement samples. By practising and following the methods of collecting samples, a good job can be done. It is needless to emphasize again, that the success of a quality oriented seed program depends upon the sampling and testing of all seed lots which are going to be used for planting purposes