

XVI. FIELD TESTS

Since most crops cannot be identified as to variety on the basis of seed characteristics alone, it is often necessary to make tests by growing seeds in the field for varietal identification. The field tests are necessary if it is desired to carefully check the correctness of the labelling of a seed lot as to variety. Such field tests can also be a very useful guide for chocking on the seed certification work. Field tests may be used to compare field and laboratory germination results. Samples collected during seed surveys may also be planted in the field for evaluation (Figure 112).

Generally, all testing laboratories may not be required to take up planting field tests for a large number of samples. However, if a seed testing laboratory is required to take up field testing or has an opportunity to do so, it should have about two acres of good land suitable for growing all crops very close to the laboratory. Facilities for land preparation, perennial irrigation and fencing should be made available for carrying out the field tests properly.

When carrying out field plot tests on seed samples for ascertaining type and variety, it is usually necessary to make comparisons between the samples received and authentic check samples of known identity. These check samples can be obtained from the breeder. The samples used as controls are most important. These should number approximately one in ten of all samples sown and should be placed throughout so that no unknown sample is far away from a control. Seeds used as controls are previously tested samples which are known to be of the required type.

The seed testing laboratory should arrange for the sample to be sown in the field during the first growing season after the samples were tested. Growing of the sample should be carried out under such conditions as to ensure that the plants develop normally. Before sowing is done a ground plan must be drawn to record the exact location of any particular sample to be sown. To ensure more exact results, samples may be sown with at least two replications. It is necessary that the best possible plants be obtained in a variety test so that the characteristics typical of the variety may have optimum conditions to express themselves. This can be achieved by growing the plants under the best cultural conditions during the proper season.

For tests conducted in drill rows (e.g. cereals), it is necessary to count the number of off-type heads per plot. The row length may be 10-12 feet depending on the facilities of land available with the seed testing laboratory. When spaced plants are used for observation (e.g.) root crops the actual number of plants per plot is counted. The plots are studied carefully throughout the period of growth and observations are recorded on morphological characters. Plants of varieties other than the bulk are recorded. At



FIG. 112—Wheat seedlings from a seed survey are being field evaluated with respect to germination.

the time of maturity the off-type plants are finally counted and their percentage is calculated on the basis of total plant population (Figure 92). If the samples are found to be of a type or variety other than that stated by the seed producer or seed seller, it should be indicated on a special laboratory report and communicated to the party concerned.

The testing of varietal authenticity and varietal purity in field plots has, of course, the disadvantage that the results become known at a time when the seed of the lot in question has already been sown. If something is found wrong, it is too late to withdraw the seed from sale. However, it serves as a check on the total programme and helps to detect weaknesses in existing procedures or execution.