

90 per cent. purity. In many cases there is no difficulty in determining what portion of the sample should be included among the impurities, but with many seeds, and especially those of the grasses—where many seeds although true to name may be more or less devoid of kernels—there is a wide divergence of opinion as to what interpretation should be given to the term “purity.” In the majority of European seed-control stations all the imperfectly developed seeds, especially in the case of the larger-seeded grasses—such as cocksfoot, rye-grass, and the fescues—although true to name, are included under “impurities.” Again, at a few stations, notably the Irish one, these immature seeds are included under “pure seed.” As in all cases the germination tests are only made from that seed left after all the impurities are removed, it is obvious that the results will be very different in accordance with what meaning has been given to the term “purity.” Take an extreme case. Let us consider a sample of meadow foxtail that has been well cleaned and contains no foreign seeds or inert matter, but of which 30 per cent. of the foxtail-seeds are not properly filled. If we assume that all the filled seeds would germinate, then in the case where all the empty seeds are counted as impurities the germination of the selected seed would be 100 per cent.; but if the empty seeds were counted as pure seed the germination would be 70 per cent. In the seed-testing done by this Department only foreign seeds, spores, &c., and inert matter are looked upon as impurities; and all imperfectly developed seed, provided it is true to name, is counted as pure seed, and is included in the germination tests. Here are the main reasons for adopting this interpretation of “purity” instead of the ordinary European conception of the term:—

(1.) When only the fully developed selected seed is used for the germination tests a misleading idea as to the value of the seed is conveyed to the buyer, unless special stress is laid on the amount of chaffy seed that is included in the percentage of impurities. Where the germination of the selected seed of a well-cleaned inferior line is high the seller would be induced to quote the germination test only, and the farmer, seeing that the sample was free from any real impurities such as foreign seeds, would be entirely misled as to the value of the sample.

(2.) In the case of high-grade lines containing little (if any) chaffy seed, there would be no difference in the germination of the seed if either of the above meanings of purity were applied to the sample.

(3.) The complete separation of all the chaffy seeds is an exceedingly difficult matter, and depends largely upon the opinion and skill of the seed-analyst, and in all seed-testing the influence of the personality of the tester should be reduced to a minimum.