

of the Department of Agriculture where samples of seeds, distributed by the U. S. Government, are tested for purity, germinating quality, and freedom from weeds. The subject of pure seed is one of the most vital importance to farmers and gardeners. What can be more disappointing or disastrous, in a pecuniary sense, than for a farmer or gardener to prepare and manure his land with all due diligence, and then discover, when it is too late, that he had sown spurious seed, impure as to variety, deficient in germinative powers, or still worse mixed with some noxious weed seeds which ruin his crops for years, and cost time and labour for their eradication.

Any farmer or seedsman can have samples tested at the Laboratory, and many thousands avail themselves of the privilege of doing so. The operations are carried on, by strictly scientific methods, and a greater number of instruments and pieces of apparatus are in use than would be supposed, most of which have been invented and improved, to suit the necessities of the work, by the men in charge.

To those of our readers who may not be favoured with the opportunity of visiting the Pan-American, the following brief description of the Seed testing exhibit should be of interest.

On entering the space devoted to it at the left of the main aisle of the Agricultural building, we see first in a glass case a "purity" separating table, with magnifying glass, forceps and other tools used by the experts in separating a sample of seeds into its component parts, namely, pure seed, chaff, sand or other foreign matter, and weed seeds.

All percentages of seed purity tests are based on weight, so next we find a pair of fine balances on which all samples are weighed. Near the scales is a new combined mixer and sampler. In this a quantity of seed is quickly mixed and a sample of the desired amount to represent the entire lot to be tested is delivered. The blast impurity test is a new device; the air blast is furnished by an electric motor,

and the light impurities, such as chaff and light or imperfect seed, are driven through a bent glass tube and thus separated from the good seed; the percentage of these impurities determines the value of the sample in this respect. But beside this germination tests well also be carried on, seeds for this test are counted, arranged in folded blotters, moistened and placed in a germinating chamber, where they are kept at a fixed temperature, the most favourable to germination. Other tests are made in sterilized sand and soil, the number of seeds germinating each day is noted and thus the percentage of germination is computed.

Many weeds, the seeds of which are most common impurities, are represented by the living plants, labeled with their correct names.

Another most interesting feature is a collection of many of these weed seeds and of commercial seeds arranged under forty magnifying glasses, accompanied by seeds of the same kinds in open dishes, so that it is easy to compare the magnified with the actual seeds, and note the differences and distinctive characters that would not appear to the naked eye.

The results and importance of seed testing are graphically represented by groups of glass tubes containing different seeds. These show the amount of chaff, sticks and sand, also the proportion of weed seeds, and finally the amount of good seed, true to name, as determined by the test of a similar sample, and the proportion of waste. A comparison of these indicates how much the farmer or gardener may lose by buying untested or poorly cleaned seed, and not to deal with a seedsman in whom because he supposes he is getting it cheap, and should teach him never to buy seed he cannot place, full reliance.

