THRESHING AND CLEANING EQUIPMENT FOR SUGAR BEET SEED

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A NUMBER of seed-harvesting and seed-cleaning problems have arisen in connection with sugar beet breeding investigations of the Division of Sugar Plant Investigations which have led to devising at Rocky Ford, Colo., by the writers special machines to do the work efficiently. In leaf-spot-resistance breeding, inbred strains are produced, necessitating threshing and cleaning of seed from isolated plants or from bagged branches of plants grown in a seed plot. In other cases, group increases, consisting of a few to several hundred plants, are made. Where the quantity of material is not bulky, the seed stalks have been gathered in burlap bags, left to dry, and then threshing and cleaning operations are conducted in the seed house. On the other hand, to produce elite seed, seed plots varying in size from about 1/100 acre to an acre or more are grown. In such cases, the seed stalks are commonly shocked in the field and threshed from the shock. In crossing inbred stains to produce F1's for test of combinations of inbreds, rows of one inbred are commonly grown adjacent to rows of another inbred. This seed is harvested according to mother strain, shocked to cure, and then threshed. In this breeding work, seed quantities may range from less than an ounce to several pounds and, with large increases, may reach 1,000 pounds. In all operations, due precautions must be taken against any contamination of seed lots.

The machines that have been devised for the various types of seed increases are as follows: (1) Combination thresher and draper for individual plants or small groups of plants, (2) suction seed separator for removal of light, non-viable seed balls, (3) a sugar beet seed polisher to remove corky ridges from seed balls and crush many of the empty seed balls, and (4) a combination thresher and suction seed separator (Fig. 1).

In some of these machines, apparently new principles have been employed. The details of operation are briefly stated and, as necessary, drawings to scale are given. It is probable that, by appropriate adaptations, some of the machines may be useful for other crop plants.

COMBINATION THRESHER AND DRAPER

This machine was devised to thresh and clean, at one handling, plants from which seed yields of an ounce or less, up to several pounds were obtained. To avoid any admixture from previous seed lots run through the machine, attempt was made to have the machine as

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