A METHOD OF FORMING A PERMANENT PEDIGREE RECORD FOR BREEDING STRAINS OF SUGAR BEETS

EVERY plant breeder attempting to produce new strains of sugar beets, commonly referred to as "varieties," has been confronted with the problem of keeping a record of the pedigree of the various strains. A method which is permanent inasmuch as the yearly additions could be made without necessitating revision or copying the entire pedigree would be desirable. The method described here has been used for the past three years and has proved to be very satisfactory.

A modification of the numbering scheme developed by members of the Division of Sugar Plants of the U. S. Dept. of Agriculture, which we have been using, will serve to illustrate the method. Each lot of seed is designated by a seed number. The first figure of the seed number is the last figure for the year the seed was produced. The second figure is a zero. This second figure represents a 10-year series, and at the end of 10 years the zero may be replaced by a dash or other designations. Each planting of beets for seed is assigned a location number, starting with the number 1 and numbered consecutively, each year. This location number enters into the seed number designating that particular crop of seed and follows the year and series figures. The balance of the seed number for any particular lot of seed is determined by the breeding technic employed in the development of that seed. The following outline briefly describes the complete numbering scheme:

80319. Seed of a space-isolated individual root.
80319-0. Seed of a space-isolated group of roots of the same variety.
80319-5. Open-pollinated seed of plant number 5 within a group of roots of the same variety.
80319-C8. Inbred seed formed by bagging plant number 8 of a planting of more than one variety.
80319-00. Pooled seed of a space-isolated cross of two or more varieties.
80319-02. Seed produced by variety number 2 of a cross of two or more varieties.
80319-007. Open-pollinated seed of plant number 7 within a cross.
80319-00C2. Hybrid seed produced by confining two varieties in a bag forming cross No. 2.
80319-OOC5. Inbred seed formed by bagging plant number 5 of a group planting of the same variety.

The 80 refers to the year 1938 and the 10-year series (0). In 1941 this may become 1-. The number (319) following the 80 represents the location number of the planting.

For the pedigree record, cards (Fig. 1) were obtained from a local printing shop. The cards are 4½ inches high with ½ by 1½ inch tabs making the total height 5 inches, and are 12 inches wide. The tabs are arranged in 10 positions. The cards were cut from sheets 25 X 30 inches of 140-pound substance of Darien index paper in such a manner that the grain of the paper is vertical when the card is in...