THE GENESA PLANTING SYSTEM

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The system of planting described below has been used successfully the past few years in Venezuela in experimental work with sesame, corn, and beans. The purpose of this article is to describe the method and make it available to other plant breeders and agronomists, if they desire to adopt it.

DESCRIPTION OF METHOD

Plots—Each unit consists of a closed circle 3 feet in diameter. This is equivalent to 9-foot straight row. An outer ridge is made by pulling the soil from the center to the outside of the circle. The seeds are planted about half way down the inner slope of the circular ridge at a point which corresponds to the natural surface level of the field. Since all the seeds are thus on the inner part of the circle, there is no danger of mixing the varieties by washing seeds from one plot to another by heavy rainfall or by irrigation. One way of marking the circular "row" is by pressing a plastic hoola loop down on the loose soil. The seeds may be planted in the resulting groove in 12 hills corresponding to the numbers on the face of a clock (Figure 1). This automatically numbers each plant in the circle.

Blocks—The circular plots are placed in a checkerboard arrangement of 10 by 10, giving blocks consisting of 100 circles.

The numbering system within the block consists of starting in the lower left hand corner with zero and numbering across to the right to 9; then starting at the left of the second row with 10 and access to 19; third row will include 20 across to 29, and the block will end with 99 in the upper right hand corner (Figure 2). Successive blocks are arranged in a checkerboard system similar to that of the plots. Experience has demonstrated that this system of numbering facilitates the handling of the experimental material by knowing where the particular plots are located in the field. In dealing with quantitative characters graded from 1 to 10, for example, 10 selections representing grade 1 may be placed in the first row of characters; 10 others representing grade 2 in the next row, etc., giving a graphical distribution of the types. In breeding work this systematic approach also facilitates the location of the female and male parents. In making statistical field tests the Latin Square system can be used for testing 10 varieties with 10 replications each. In fertilizer tests the different chemical applications are placed on the inside of the circles and the danger of leaching is minimized. Border effect is also reduced.

Irrigation

After planting, a hose may be used to fill the circles to the proper level to insure germination of the seeds. Subsequent watering may be done the same way during periods of drought.

Cultivation

The inside of the circles and immediately around the plants must be hand hoed. However, since these circular units are laid off in a checkerboard system, a power mower may be used to keep down the weeds in the spaces between the circles and in the alleys (Figure 3). Frequent mowing not only keeps down the broadleaf weeds but gives native grasses a chance to develop and form a firm base for walking while taking field notes and making crosses.