per acre, obtained from planting 15 beans in hills 20 inches apart was not significantly different from that obtained from the drilled rows. At the same planting rates, yields were progressively lower as the distance between hills increased. Yields within a specific spacing increased as the number of seeds per hill increased (table 1).

Observations made in August showed a considerably higher weed population in the 40-inch checked hills than in any other planting method. The least number of weeds was found in the drilled row plots. The weed population appeared to be inversely related to the amount of shading or ground cover provided by the soybeans. The weeds present were primarily those which had germinated after the last cultivation.

The results of this experiment indicate that a yield loss might be expected from planting soybeans in hills rather than in drill rows. Some harvest difficulties might also occur, as the bean plants in the 20- and 40-inch hills were coarser stemmed and had a greater tendency to branch than when drilled. Many of the lower branches bent downward to the ground, and in some cases were completely horizontal. With ordinary harvest methods this condition would have resulted in greater yield losses for hill-planting than are reported here.—J. W. PENDLETON and F. W. SLIFE, Illinois Agr. Exp. Sta., Urbana, Ill.

EQUIPMENT FOR APPLYING FERTILIZERS TO EXPERIMENTAL GRAIN OR SOD PLOTS

A Versatile machine for fertilizing and seeding experimental plots was recently described by Hunter. That machine consists of an Allis-Chalmers Model G tractor, vegetable seeder or corn planter, four belt-type fertilizer hoppers, and four furrow openers for applying fertilizers in bands. It has been successfully used for applying fertilizers to more than 15,000 plot-rows of sugar beets, potatoes, corn and onions during the past three seasons. It was also employed to apply fertilizer in bands 7 inches apart on grain plots. In order, however, to apply fertilizer in bands 7 inches apart, it is necessary, with the original machine, to go over the plots twice with furrow-openers set 14 inches apart. The original machine could apply simultaneously only four bands of fertilizer. This note describes additional equipment which still further increases the versatility of the machine and makes possible its employment to apply simultaneously eight bands of fertilizer, 7 or more inches apart, to grain, sod, or other plots where single disk furrow openers will penetrate the soil. With this additional equipment, the same basic machine may be used to apply fertilizer in exact amounts to all the common field and vegetable crops.