by tannin content of the plants used in this study are shown in figure 2. A normal distribution is indicated. The preliminary nature of these data is recognized. It is indicated that the plants in the population studied constitute a normal distribution with respect to tannin content. Also, the tannin content of the plants studied was determined in 1951, and the plants were grazed only one time the following year. However, the cattle showed great preference for fine stemmed plants in each tannin class interval and for plants low in tannin in the fine and medium stem categories. They grazed heavily only a small percentage of the coarse stemmed plants in all tannin class intervals. These results indicate that stem type and tannin content both affect palatability in sericea. —E. D. Donnelly, Associate Plant Breeder, A.P.I., Agricultural Experiment Station, Auburn, Ala.

DEPTH BANDS FOR DOUBLE DISC-FURROW OPENERS

An Endless belt fertilizer dispenser, mounted on a Model "G" Allis-Chalmers tractor, has been used successfully for two purposes; namely: (1) in the application of commercial fertilizer, and (2) in the seeding of small grains, sugar beets, grasses, legumes, and pasture mixtures. Double disc furrow openers mounted independently on the toolbar were used to place the fertilizer, or seed, in the soil. These furrow openers can be adjusted to row spacings from 8 to 56 inches apart depending upon the number fastened to the toolbar.

The discs were usually set to the maximum depth when used as a fertilizer attachment; however, for seed to be planted at shallow depths, precise depth control is necessary to obtain good stands. Figure 1 illustrates a plywood-type of depth band that is readily attachable to the double disc furrow openers.

Two thicknesses of 3/4-inch plywood were cut to a diameter that provided the desired depth when mounted on the face of the disc. An opening was made on the inside plywood disc section to form a recess for the disc bearing hub when the two plywood sections were glued together and secured by screws. The disc assembly was then center-drilled to receive a 3/4-inch stud bolt machine-threaded to replace the screw cap located in the center of the hub. The length of the bolt was determined by the thickness of the plywood disc, metal washer, and the additional length necessary to fully utilize the tapped thickness of the bearing hub that received the screw cap. A metal band, fastened to the outside edge of the plywood disc, provided protection for the plywood.

A depth band mounted on one side of the double disc opener was usually sufficient to obtain proper depth control. When shallow seedings were made, the depth band provided the necessary traction to keep the disc in motion. The inside cavity that fits the disc hub will hold the depth band in position so that it will turn with the disc. Since each depth band was secured to the disc with only one bolt, it could be attached or removed in less than a minute. —H. R. Haise and L. R. Jensen, U. S. Northern Great Plains Field Station, Mandan, N. Dak.

IRRIGATION CONTROL ON A HAWAIIAN SUGAR PLANTATION

Hawaiian Commercial and Sugar Co., located on the Island of Maui produces over 150,000 tons of sugar each year from 24,400 acres. Because annual rainfall is very low, all of these acres are irrigated. Each acre of cane from its start until harvest at two years of age requires about 25-acre feet of water. This enormous amount of water is distributed to the fields in 40-50 irrigation rounds of about 6 acre inches per round.

The problem in irrigation control is to know precisely when to irrigate each field so that on the one hand cane growth is not lost, and on the other hand applications are not so frequent as to be uneconomical. Extensive work done at this plantation shows that when more than about 60% of the available soil water is used up, growth is reduced. In terms of soil moisture tension, this point is at about 0.25 atmospheres.

One recently harvested experiment gave the following result: Blocks of cane irrigated at 0.25 atmospheres yielded

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2 International Harvester Co. Twelve-inch double disc furrow opener assembly for grain drill.

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