A TWO-ROW TRACTOR MOUNTED MULTIPLE FERTILIZER DISTRIBUTOR FOR ROW CROP FIELD TESTS

PLANS were made early in the fall of 1947 by the agronomy staff of the Texas A&M College for a series of new fertilizer tests with row crops in various parts of the State. Attention was given to machines to facilitate these tests.

Among those considered was a special single-row, belt-type, walking fertilizer distributor described as "An Accurate Fertilizer Applicator for Field Test Plots" by J. P. Fairbank and P. A. Minges of the University of California. The California machine applies only one fertilizer at a time, but employs a principle that was later adapted to the design of a multiple-fertilizer tractor-mounted distributor for Texas.

The two-row tractor equipment developed for the Texas tests is shown in Fig. 1. It is mounted on a Model A John Deere tractor and permits application of three separate fertilizers simultaneously with planting. This equipment was developed jointly by the Texas Agricultural Experiment Station and the Mississippi Delta Branch Experiment Station with the cooperation of John Deere and International Harvester Company. Construction was in the Delta Branch Station shop at Stoneville, Miss., under the supervision of the junior author.3

Fig. 1 (top) is a front view of the equipment and shows a special fertilizer hopper on each side of the tractor. The individual hoppers are divided into three compartments, one each for nitrogen, phosphorous, and potash. Fertilizer from each compartment is discharged simultaneously and at a uniform rate along a predetermined length of row at time of planting. Each compartment is self-cleaning and only the amount of fertilizer needed for a single row is placed in a hopper at a time. Weighing and premixing fertilizer is unnecessary with the use of this equipment. The ratio and rate of fertilizer applied is determined by the kind and volume of fertilizer used in each compartment. The different fertilizers may be discharged into individual spouts for separate placement or through the same spout for common placement.

The equipment shown in Fig. 1 (top) is for common placement of the fertilizers. A close view of one of the special front-mounted fertilizer hoppers is shown in Fig. 2. The principal parts of the hopper are identified in Fig. 2 (top) and are as follows:

1. A fertilizer tray without a top or bottom but divided into three compartments. The curved end of the tray is the front. This curvature is to facilitate emptying of the tray by the rotary fertilizer brushes.
2. A fertilizer belt around a couple of rollers forms a false bottom to the fertilizer tray. The belt is attached only to the front edge of the tray.

Fig. 1 (bottom) shows the rear-mounted planting equipment used in conjunction with the special front-mounted fertilizer hoppers. This is standard equipment with only slight modifications. The fertilizer hoppers are the key to the set-up and all other equipment on the tractor is fitted to these special hoppers. A close view of one of the hoppers is shown in Fig. 2. The principal parts of the hopper are identified in Fig. 2 (top) and are as follows:

(a) A fertilizer tray without a top or bottom but divided into three compartments. The curved end of the tray is the front. This curvature is to facilitate emptying of the tray by the rotary fertilizer brushes.
(b) A fertilizer belt around a couple of rollers forms a false bottom to the fertilizer tray. The belt is attached only to the front edge of the tray.