

Progress Report  
on  
Mechanical Details on the 3 in 1 Tree Planter

by

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1. FERTILIZER

The fertilizer distributor was a meter and hopper from a Ford corn planter. The meter drive was from the tree planter coultter. A 30- tooth sprocket was set into and welded to the hub of the coultter. This drives a 40- tooth sprocket on a jack shaft. A 23- tooth sprocket becomes the driver on the opposite end of the jack shaft. The sprocket on the meter drive is a 12- tooth one. A total of about 110 inches of #35 roller chain was used. An adjustable gate which is a part of the fertilizer meter was used to modify fertilizer rates.

Below the lower end of the flexible tube for fertilizer delivery, but above the opener, a valve was fabricated. This valve was solenoid operated, activated by a micro-switch which was placed in the travel of the hand planting the tree. The switch was normally open and had a wire extension which intercepted the hand. The position of the fertilizer can be governed by the position of the fertilizer delivery, height of the fertilizer valve, time delay in the switch, or forward travel.

Six volt solenoids were used so that by a simple wiring change either a 6 or 12 volt tractor electrical system could be used to operate the solenoid valve.

2. CHEMICAL APPLICATION

Components from a sprayer kit which normally mounts on a corn cultivator were used. The pump was tractor PTO driven. Valve and pressure controls were placed in the reach of the tractor operator. The nozzles were placed on a mounting member behind the press wheels at a height of 12" and spacing of 22".

1 Department of Forestry

2 Department of Agricultural Engineering

2 Solenoid, 6 V DC, Cat. No. 24F889, Intermittent Duty, \$ 5.29  
2 ohms, 3.0 amps, 1/8 to 7/8" stroke max, lift 39 oz.

Newark Electronics

1 Sprocket for #35 roller chain, #3512 (12 tooth 3/4" bore) 3.00

Browning Company

1 Sprocket for #35 roller chain, #3540 (40 tooth 5/8" bore) 10.00

Browning Company

1 Sprocket for #35 roller chain, #3523 (23 tooth 5/8" bore) 6.40

Browning Company

1 Sprocket for #35 roller chain, #3530 (30 tooth) 10.00

Browning Company

1 Sprayer 85.88

8-roller pump (Hypro Model C 7500)

Line Strainer

Suction

Control with pressure release and gage (Sprayer systems

Directo Valve Model 3B)

11 Ft. - 1/2" Hose

15 Ft. - 5/8" Hose

2 Spray nozzles (Spraying Systems 6508)

John Deere Company

1 Fertilizer Distributor Assembly  
(Meter and Hopper)

110 ins. #35 Roller chain

2 5/8" Sleeve self-aligning bearings