

THE CONSTRUCTION AND USE OF THE HUMBOLDT NURSERY TARP ROLLER

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To control weeds, nematode and unwanted pathogens, it is necessary to fumigate nursery soil prior to sowing. Most nurserymen are familiar with this operation so it is unnecessary to go into the technique to any length in this presentation.

Many methods are also used to split the tarps. We use a knife mounted on a surplus marine 4 x 4 platform carrier. Some say the Honda tricycles work well. Also we use the usual tractor-mounted ring to remove the buried edge of the tarp from under the soil and bunch it up in a long string.

The problem at Humboldt Nursery was to find an efficient method of removing and disposing of 35 acres of 1 mil (.001) plastic tarp. Our disposal area is 35 miles away at a land fill dump operated by the county.

Many methods were tried in the past as we did not have access to the wagon or truck with rollers similar to the old washing machine wringers which, I understand, are used in some localities.

When I first was assigned to the Nursery a unique rollup method was used. One end of a mandrel was attached to the FTO of one tractor and the other end mounted into a hearing supported by the draw bar of another tractor. This rolled up the tarps on disposable cores, but usually damaged the FTO housing, necessitating replacement each year.

Manually pulling the tarps into a dump truck was tried, but because of the labor involved, the fumes from the exhaust soon did in the crews.

The rollup method had merits, so, from our "junk" pile, the Nursery mechanics fabricated a 3-point hitch-mounted roller powered by a motor operated from the tractor hydraulic system. This gave us a large range of speed control to prevent damage caused by the rolls getting out of balance, as encountered in the old method, where this bounce could not be fully controlled as we were unable to rotate the roll slowly enough when it was getting full. One of the major components of the tarp roller

consists of a mandrel sized to fit inside a four foot segment of the paper core the tarps come rolled on. This core is normally discarded after use. As it is 12' long three 4-foot pieces can be cut from it.

Two flanges with hubs are fitted on each end of the mandrel. One, opposite the hydraulic motor end, can be solid; the other is removable. It is held on the mandrel by a pin which goes through a hole in the hub through a hole bored in one end of the paper core and through the mandrel. This arrangement causes the core to turn with the mandrel.

These hubs are counter-bored to fit over the ends of the cores for about two to three inches. The shaft size of the mandrel is now reduced to accomodate bearings with a slip-on fit. These are the slotted type and fit into gussets welded onto the frame.

The motor end is fitted with a quick-disconnect coupler and the motor is mounted on a slotted bracket with a latch to allow the motor, when unlatched, to slip endwise and disengage the coupler.

When assembled with a core in place, the tractor is backed to one end of the pre-split tarps, one tarp end is looped around the core and the rollup started. More tarps, up to five or six, can be added by simply slipping tilt. end under the tarp being rolled up. care must be taken so as not to get a hand or arm into the rollup action. Stopping the roller is the safest method. (The procedure is like winding a spool of thread or fishing line onto a reel.)

After rolling up all the tarps directly behind the tractor, it can be moved over and the operation continued.

When the spool is full, the tractor is driven to a holding area, the roll set on the ground by lowering the 3-point hitch, after disconnecting the motor from the shaft by sliding it back to clear the coupler.

When the roll or flanges touch the ground and the frame is lowered a little more, the bearings will lift from the gussets. The tractor can be moved forward out of the way.

One bearing is slipped off the shaft. When the pin is driven or pulled out of the collar and the flange removed, the mandrel can be pulled out of the core, and you have a nice tidy roll of discarded tarps.

When all the tarp has been removed from the fields and stacked in one or more places at your convenience, transportation can be arranged. The rolls are then forkloaded and hauled away.

The entire machine probably costs \$500 if constructed as ours was from the "junk pile." The hydraulic motor can be dismantled and reused where it was "robbed from" originally.

Jim Lott, from MEDC, has the roller listed in his nursery catalog and we have plans and drawings available.