

MANURE MANAGEMENT

Mobile Draghose System with a Portable Tank

OBJECTIVES

A draghose allows immediate incorporation of manure, as well as reduced soil compaction due to the elimination of heavy liquid tankers. The goal of this project is to demonstrate and evaluate the use of a portable tank to extend the draghose manure application system to fields that are further away from the manure storage and not contiguous with the main farm.

DESCRIPTION OF SYSTEM

The mobile draghose system is composed of: an 18,000-gallon portable “frac” tank, a centrifugal pump, a return valve, 1.5 miles of flexible 6-inch extension hose, 1,200 feet of draghose, a flow meter, a distribution manifold, a tillage tool, a cell phone, a 200 hp. tractor, and an operator. The tank is parked in a field by a road or driveway. Manure is transported to the tank using road-legal trucks, and is pumped into a hole in the top of the tank. A Cornell centrifugal pump pumps the manure from the tank to the field through 6-inch flexible hose at 140 – 180 psi. A 5-inch draghose is attached to the flexible extension hose and a distribution manifold on the tractor. Manure is incorporated either by a chisel plow or an Aerway. For safety, a cell phone controls a return valve and line to the portable tank. If the line breaks, the operator punches a code into the cell phone, activating the return valve, allowing timely repair and minimal mess. Manure can be applied up to a rate of 1,300 gallons/minute, depending on truck availability.

OUTCOME

The draghose does an outstanding job of reducing or eliminating odors. Other benefits include nutrient retention, reduced runoff, and less heavy tractor traffic on the road. Manure was applied at rates ranging from 400 – 1,000 gallons/minute at the demonstration sites, as truck availability was limited. Since the system included a tillage trip, we were able to demonstrate an average of 0.75 gallon/acre savings in fuel. We were also able to demonstrate a trend of reduced soil compaction using the mobile draghose system vs. tanker/truck surface spreading, resulting in higher corn yields.

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Manure being directly incorporated with a draghose.



Portable “frac” tank being filled with liquid manure.

“Many smaller farms will also need to put in some kind of manure storage. The draghose is a way to keep down the cost of manure application equipment.”

-Shawn Bossard
Cornell Cooperative Extension

