UTILIZING LIQUID LIVESTOCK MANURE AS A NITROGEN SOURCE ON GROWING CORN IN THE U.S. GREAT LAKES REGION

Sub theme: Technology

Eric Richer, Sam Custer, Sarah Noggle, Diane Shoemaker and Glen Arnold

Ohio State University Extension, Wauseon, Ohio, USA

Abstract:

The Great Lakes Region of the United States has quickly become one of the most scrutinized nutrient application areas in the country because of Hazardous Algae Blooms caused by nutrient loading from wastewater treatment plants, municipal overflows, home septic systems and agriculture. To create new timing and placement opportunities for manure application technology, Ohio State University Extension completed on-farm research plots in the Great Lakes Region using liquid swine, dairy, and beef manure to provide sidedress nitrogen to emerged corn. A manure tanker and injection toolbar were used to incorporate manure into corn at the V3 stage and compared to similar amounts of sidedress nitrogen in the form of 28% Urea Ammonium Nitrate (UAN) in replicated on-farm research plots. Data from over 50 replicated on- farm liquid swine manure plots from 2011-2016 showed that when manure was incorporated and applied at a rate to match that of commercial fertilizer, no significant difference was seen in corn yield results. Research from four replicated on-farm liquid dairy manure plots from in 2016 showed that when manure was incorporated, nitrogen- balanced with 28% UAN and matched to that of commercial fertilizer, no significant difference was seen in corn yield results. Three replicated on-farm liquid beef manure plots were conducted to evaluate equally matched nitrogen rates of manure and commercial fertilizer on growing corn. Again, these two treatments produced no significant difference in corn yield among the three sites. In an effort to improve manure application efficiency and reduce soil compaction drag hose plots were conducted to sidedress emerged corn with liquid swine manure at the V3 stage for three crop seasons. These drag hose results showed that liquid swine manure yielded greater than or equal to treatments made with equal rates of commercial fertilizer. These on-farm research plot yield results have indicated liquid livestock manure produces similar corn yields to commercial fertilizer when incorporated as a sidedress nitrogen fertilizer. The use of liquid manure to sidedress nitrogen for corn can provide a new window of time for manure application in the Great Lakes Region where surveys of livestock producers indicate approximately 50% of manure is currently fall applied. Incorporated into a to a growing corn crop, manure nutrients can be better utilized when the growing crop needs the nutrients.

Keywords: *animal manure; sidedress nitrogen; sidedress manure in corn; manure application technology; manure research; manure on growing crops*