

Blending Crop and Livestock Production With Good Environmental Management



Mike Bravard operates an all-in all-out contract swine finishing operation, as well as producing corn and soybeans. Much of the land he farms is located in the Buttrick Creek Watershed, northeast of Jefferson. He's been involved in the local soil and water conservation district and has participated in Iowa Soybean Association On-Farm Network™ nitrogen and manure management studies in the watershed since the program began.

Because of his hog business, Bravard is particularly interested in making the best use of liquid manure in crop production.

"We empty our manure pits once a year in the fall," he says. "Soils are usually drier then, so there's less chance we'll create a soil compaction problem with the heavy application equipment."

In order to be relatively sure of the amount of nutrients being applied, Bravard tests manure at least once and sometimes twice during application. "It's usually pretty consistent. The first test last fall showed 45 lbs. of nitrogen, 37 lbs. of phosphorus and 29 lbs. of potash per 1000 gal.," he notes. "In the second test, the results showed 51 lbs. of nitrogen, 37 lbs. of phosphorus and 38 lbs. of potash."

In recent years, Bravard has used manure as his primary nitrogen source for about 160 acres of corn. "We rotate fields that get manure, so we're only putting manure on a field about every four years or so," he adds. "We try to haul to fields that are the lowest in phosphorus, but are no more than three or four miles in hauling distance."

"I've been doing yield test strips as part of the Iowa Soybean Association's agronomy and watershed program here in the West Buttrick Creek watershed to see whether I can use manure alone, with no supplemental nitrogen, phosphate or potash for corn production," he says.

To be certain the corn where he uses manure isn't short of nitrogen, Bravard has made a late spring nitrate nitrogen soil test a standard practice. "Even though we've applied enough manure to provide 100% the corn's needs, the soil tests usually suggest we need to apply more nitrogen," he tells. "In most years it pays to sidedress an extra 50 lbs. of nitrogen on the manured fields."

From our testing, I believe that the nitrogen from manure is only partially available in the first year."

Phosphates are another of Bravard's concerns. "When we apply manure at rates to supply 100% of the corn's nitrogen needs, we may be building phosphate levels higher than they need to be," he says.

He says what he's learned from recent work in the watershed is that he needs to apply manure on more acres, rather than trying to supply 100% of either the nitrogen or phosphorus with it.

Bravard is one of several growers actively conducting nitrogen and manure management strip trials with the On-Farm Network in the West Buttrick Creek watershed program.

Nitrogen Availability

Small plots in the West Buttrick Creek watershed last year demonstrated that nitrogen availability depends on the source. As shown below, nitrogen from liquid hog manure was only 58% available to the corn crop, when compared with commercial fertilizer.

