

Western Illinois University/Allison Organic Farm

“Soybean Yield Response to Hog Manure Application”

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During the 2006 organic soybean production at the WIU/Allison Organic Research Farm, test strips of hog manure were evaluated for yield response in two soybean fields (fields 4-3 and 4-4). This is a preliminary test and may warrant future testing with more reps to draw conclusions.

The liquid hog manure was applied at a rate of about 2,000 gal/ac over the top of a winter rye cover crop. Each strip was about 30 ft wide for the entire length of the field, which was close to 1,280 ft in length. The next step involved disking the rye/manure two times and soil finishing one time prior to planting. Food grade soybeans (ECR-J30) from Clarkson Grain Company were planted on June 7th at a rate of 163,000/ac in both fields. These fields were also rotary hoed and row cultivated twice.

Each field is 4.5 acres and each treatment manure strip consists of an area of 0.89 acres. Two reps or strips of manure were established for each field for a total of four strips. On October 24th, we were able to successfully record yield from all of the strips, but one in field 4-3. According to the combine yield monitor, all manure treatments increased yields in the soybeans more than the controlled sections without manure treatments.

The two manure treatments in field 4-4 averaged 36.1 bu/ac, while the control (without manure) in the same field only yielded 30.5 bu/ac. The one manure treatment in field 4-3 yielded 36.3 bu/ac, while the control section yielded 32.9 bu/ac. The yield gain by applying the hog manure in field 4-4 was 5.6 bu/ac and in field 4-3, was 3.4 bu/ac. See the table below to illustrate these figures.

Treatment	Field #	Avg. Yield (bu/ac)	Extra profit *
Hog manure	4-3	36.3	\$14.78/ac
Control (no manure)	4-3	32.9	None (N/A)
Hog manure	4-4	36.1	\$45.06/ac
Control (no manure)	4-4	30.5	None (N/A)

* The profit after the cost of manure and its application has been deducted.

These treatments have the potential to produce about \$62/ac more at an average price of \$13.76/bu paid for the food grade soybeans on the Allison Farm. This does not include the manure costs. If we figure the manure cost of \$10 per 1,000 gallons and application cost of (\$0.0061/gal) using a 3,000 gallon wagon we have a total manure expense of about \$32/ac. The average net profit increase for the hog manure application in this case is \$30/ac. This seems like a substantial increase in income, but it is important to consider important variables such as market prices before spending the time and money on this kind of treatment. It is also important to follow organic certification guidelines when applying any liquid manures or other treatments for that matter.