

# Effects of Municipal Solid Waste (MSW) on Double Crop Soybean Yield

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## Objective

To evaluate the grain yield effect of Municipal Solid Waste (MSW) applied prior to planting double crop soybeans.

## Background

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Crop Year: 2013

Location: Wauseon, OH

County: Fulton County

Soil Type: Rimer and Mermill

Drainage: Old clay, un-systematic

Previous Crop: Wheat

Tillage: Conventional and no-till

Soil Test: pH 6.4, P 25 ppm, K 137 ppm

Planting Date: July 16 & 18, 2013

Seeding Rate: 200,000 seeds/acre, 15" rows

Herbicide: 8 oz Tricor pre-emerge; 1.5 pt  
glyphosate on August 10

Insecticide/Fungicide: none

Harvest Date: October 27, 2013

## Methods

This study was designed with two treatments replicated five times in a randomized complete block design. Treatment plots were roughly 28 feet wide by 300 feet long. In treatment 1, 6,000 gallons of Municipal Solid Waste (MSW) were knifed into the wheat stubble. An analysis of the MSW showed that at the 6,000 gal/ac rate, 24.9 lbs of N, 75.0 lbs P, and 6.8 lbs K were applied to the land. A conventional till soil finisher was then used to prep the seedbed 2-3 days after MSW was applied or 4-5 days after wheat harvest. Treatment 1 was planted July 18, 2013.

In the check treatment, soybeans were no-till planted 3 days after wheat harvest (July 16, 2013). An eleven row planter (15" spacing) was used to plant both treatments. Seed used was Pioneer 92Y80 in both treatments. Plots were harvested with a commercial combine. Yield measurements were taken with a GreenStar 2 yield monitor.

### Treatments

- 1) Double crop soybeans with 6,000 gallons/ac MSW prior to planting
- 2) Double crop soybeans without MSW – Untreated Check

## Results

Table 1. Double crop Soybean Yield (bu/ac) Response to MSW

Treatment	Harvest Moisture	Yield (bu/ac)
Double crop soybean with 6,000 gal MSW	15.8%	21.5
Double crop soybean without MSW	16.3%	16.7

**LSD (0.05) 2.85, CV 8.49 – Yes significant  
difference between treatments**

## Summary

There was a significant difference in yield between the doublecrop soybeans planted with MSW and those planted without. The MSW soybeans showed better emergence, stand counts and canopy that likely occurred from added fertility and moisture from the MSW applied. This faster growth could have also lead to faster maturation and thus, lower harvest moisture. Further data in the form of multi-year replications will add to the validity of these results.

## Acknowledgement

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