

**Roots  
w/ CC  
and Gypsum**



**Indiana, 2012**

**None**





# Collecting cover crop biomass







# Drilling Soybeans

## Indiana, 2013



# Spreading FGD Gypsum





# Equipment

Litter & lime spreaders

**Chandler**



**BBI**



# Equipment

GYP SOIL

New Leader 30-Series



BBI lime/fertilizer spreader





# Two Varieties





## 2000# Gypsum



## 0# Gypsum



**Indiana, 2013**



**October 23, 2013    Indiana**





# 2013 Profitability Analyses

by Marv Batte



## Notes

- Profitability analysis is based on crop enterprise budgets from Ohio State, Purdue, and Auburn.
- Profit measure is *Return to Management*. All other costs including labor and land rental are deducted.
  - Cash rental rates are \$260 (OH), \$290 (IN) and \$100 (AL).



# Notes

- Costs of production are the same **except:**
  - Gypsum is **\$50/ton**
  - Cover crop seed as applied at each state (cereal rye in Ohio and Indiana and Oilseed Radish in Alabama.
  - Cover crop seeding costs are **\$4.50/acre**
  - Yields are average of four replicates
- Soybean price: \$12.90/bu



## 2013 Yields and Profitability – Average of all treatments

|           | Average<br>Yields | Average<br>Profit |
|-----------|-------------------|-------------------|
| Site      | (bu/ac)           | \$/ ac            |
| Alabama   | 38.3              | -33               |
| Hoytville | 57.7              | 117               |
| Indiana   | 57.3              | 80                |
| Piketon   | 59.4              | 139               |



## 2013 Yields and Profitability – Average of all sites

|                          | Average<br>Yields | Average<br>Profit |
|--------------------------|-------------------|-------------------|
| <b>Gypsum</b><br>(lb/ac) | (bu/ac)           | \$/ ac            |
| 0                        | 53.0              | 98                |
| 1,000                    | 53.5              | 79                |
| 2,000                    | 53.1              | 50                |



# Soybean Yields for Gypsum levels

| Gypsum (lb/ac) | Alabama | Indiana | Ohio-<br>Hoytville | Ohio-Piketon |
|----------------|---------|---------|--------------------|--------------|
| 0              | 38.2    | 58.2    | 58.2               | 57.4         |
| 1,000          | 38.8    | 58.2    | 57.8               | <b>59.0</b>  |
| 2,000          | 38.0    | 55.6    | 57.1               | <b>61.8</b>  |

## 2013 Profitability – Average by Gypsum level and Site

Profit (\$/Ac)

| Gypsum (lb/ac) | Alabama | Indiana | Ohio-Hoytville | Ohio-Piketon  |
|----------------|---------|---------|----------------|---------------|
| 0              | -9.56   | 116.42  | 148.23         | 138.03        |
| 1,000          | -27.14  | 91.70   | 118.64         | 133.50        |
| 2,000          | -61.93  | 31.59   | 84.86          | <b>144.33</b> |



## 2013 Yields and Profitability – Average of all sites

|            | Average Yields | Average Profit |
|------------|----------------|----------------|
| Cover Crop | (bu/ac)        | (\$/ ac)       |
| No         | 51.4           | 63             |
| Yes        | 55.0           | 88             |

**+\$25**

# 2013 Yields – Average by Cover Crop Treatment and Site

| Yield (bu/Ac) |         |         |                |              |
|---------------|---------|---------|----------------|--------------|
| Cover Crop    | Alabama | Indiana | Ohio-Hoytville | Ohio-Piketon |
| No            | 35.4    | 55.2    | 57.6           | 57.3         |
| Yes           | 41.2    | 59.5    | 57.9           | 61.4         |



# 2013 Profitability – Cover Crop Treatment

| Cover Crop | Profit (\$/Ac) |         |                    |                  |
|------------|----------------|---------|--------------------|------------------|
|            | Alabama        | Indiana | Ohio-<br>Hoytville | Ohio-<br>Piketon |
| No         | -\$48.20       | 61.60   | 121.20             | 118.30           |
| Yes        | -\$17.60       | 98.20   | 113.30             | 158.90           |

## 2013 Yields and Profitability – Average of all treatments

|              | Average Yields | Average Profit |
|--------------|----------------|----------------|
| Soybean type | (bu/ac)        | \$/ ac         |
| Low Oil      | 50.9           | 46             |
| High Oil     | 55.5           | 105            |



# 2013 Yields – Average by Soybean Variety and Site

Yield (bu/Ac)

| Soybean type | Alabama | Indiana | Ohio-Hoytville | Ohio-Piketon |
|--------------|---------|---------|----------------|--------------|
| Low Oil      | 34.4    | 54.9    | 55.8           | 58.5         |
| High Oil     | 42.3    | 59.7    | 59.7           | 60.2         |

## 2013 Profitability – Average by Soybean Variety and Site

|              | Profit (\$/Ac) |         |                |              |
|--------------|----------------|---------|----------------|--------------|
|              |                |         |                |              |
| Soybean type | Alabama        | Indiana | Ohio-Hoytville | Ohio-Piketon |
| Low Oil      | -\$83.90       | 49.10   | 92.00          | 127.70       |
| High Oil     | \$18.20        | 110.70  | 142.50         | 149.60       |



## Key Observations

- For Soybean yield:
  - Gypsum: no impact in 2013.
  - Cover crops plots: +3.6 bu/acre
  - High oil soybeans: + 4.6 bu/acre
  - Continuous soybeans: 5.5 bu/acre less than soybeans after corn.
  - Yields in Ohio (Piketon and Hoytville) and Indiana were “statistically” equal.
  - Alabama yields were significantly lower: 19 bu/acre less.

## Observations across sites and treatments

- For Soybean Profitability (Return to Management):
  - Gypsum
    - 1,000#, -\$20/acre less profit
    - 2,000#, -\$40/acre less profit
    - (\*based on 1 year)
  - Cover crop: + **\$25/acre**



## Observations across sites and treatments

- High oleic soybean: **\$59/acre more** profit.
- Continuous soybeans produced **\$70/acre less** profit than soybeans following corn.

# Increasing No-Till Soybean Productivity with Cover Crops and/or Gypsum

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