



STARS



Strip Testing At Regional Sites

A Summary of Soybean Foliar Fertilizer Trials Conducted in Michigan in 2009 and 2010

1-26-11 Data Update

STARS - Overview

The STARS program (strip testing at regional sites) provides Michigan soybean producers with a statistically sound method for evaluating the yield and income benefits of new products and/or management practices. Producers across Michigan identify new products or practices of interest and conduct field scale research trials using a common protocol. The data is collected, subjected to statistical scrutiny, summarized across locations and years and shared with soybean producers. The STARS program must continue to adhere to the following guidelines to be successful:

- ⇒ Use an independent third party evaluator (MSU Extension)
- ⇒ Be producer focused/driven/friendly
- ⇒ Use similar protocol across the state and all trials
- ⇒ Perform statistical analysis and interpret the data
- ⇒ Share group data while keeping individual data confidential



2010 STARS Foliar Fertilizer Trials

Based on producer input, the 2010 STARS program evaluated foliar fertilizer effects on soybean yields. Two treatment protocols were used with four replications of each treatment and control.

3-18-18 applied @ R1 (First Flower) at a rate of 1 gal/ac of 3-18-18 and @ R3 (Early Pod Development) at a rate of 2 gals/ac 3-18-18

3-16-16 TMR applied @ R1 at a rate of 1 gal/ac 3-16-16 TMR and 1 qt/ac Liquid Sugar and @ R3 at a rate of 1/2 gal/ac 3-16-16 TMR, 1/2 gal/ac Enhanced CRN and 1 qt/ac Liquid Sugar

Complimentary products from Alpine Plant Foods were applied at all locations in 2009 and 2010.

Statistical Data Interpretation

Coefficient of Variation (C.V.):

- ⇒ Expresses the percent variation in the trial not attributable to the treatments
- ⇒ Any individual plot data with a CV over 10% is not included in the summary data

Least Significance Difference (LSD_{0.05}):

- ⇒ This is normally expressed at the 0.95% level which means with 95% accuracy, when applied to the yield data, one can be assured the difference is attributable to the treatment.
- ⇒ With a LSD of 2.0 bu/ac and the treatment yield of 55.0 bu/ac and the control yield of 54.0 bu/ac, statistically there is no yield difference due to the treatment.
- ⇒ Different letters (a, b, c, etc.) identify statistically different yields. When the same letter is used for two or more treatment yields, the difference between them is not statistically significant.
- ⇒ For additional information on 2009 sites, visit www.michigansoybean.org.

Figure 1. 2010 STARS 3-16-16 TMR Data by Location

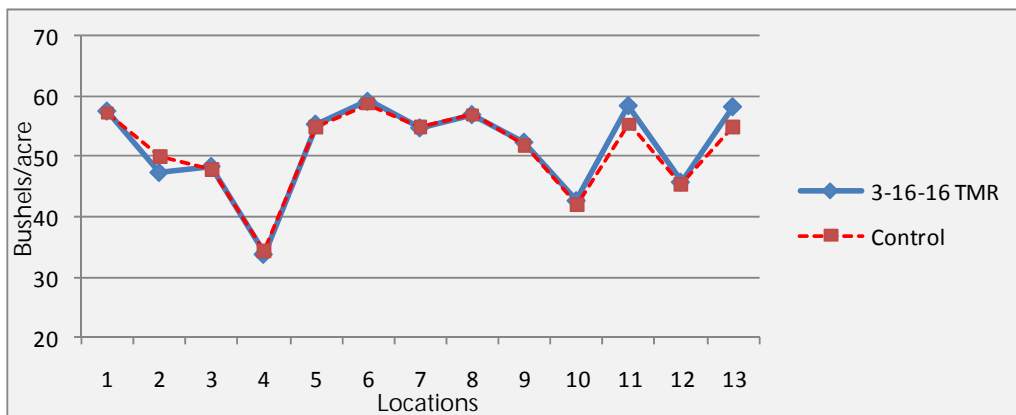
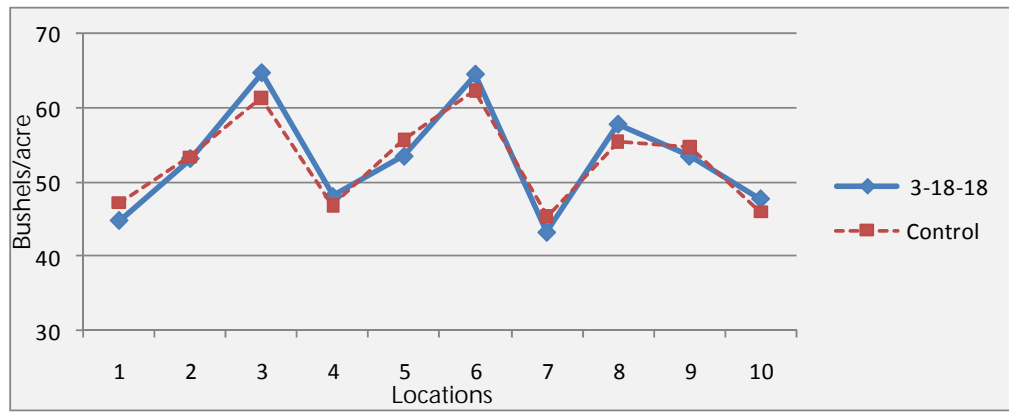


Figure 1 shows the yields for the 3-16-16 TMR treatment and the unfertilized control at 13 locations. No statistically significant differences occurred between the 3-16-16 and the control. Yields for the 3-16-16 treatment ranged from 3.3 bu/ac higher to 2.6 bu/ac lower than the control in 2010.

Figure 2. 2010 STARS 3-18-18 Data by Location

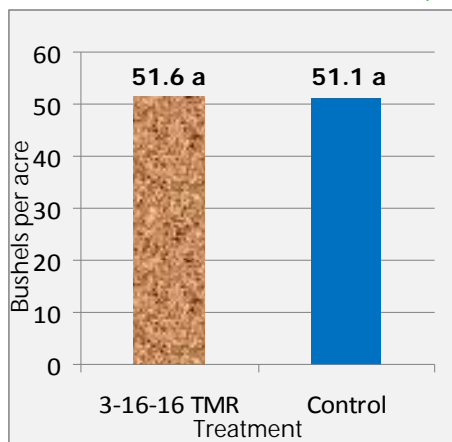
Figure 2 shows the yields for both the 3-18-18 treatment and the unfertilized control at 10 locations. The 3-18-18 produced a significant yield increase at one of the 10 locations. Yields for the 3-18-18 treatment ranged from 3.5 bu/ac higher to 2.3 bu/ac lower than the control in 2010.





STATEWIDE Data Summary Graphs

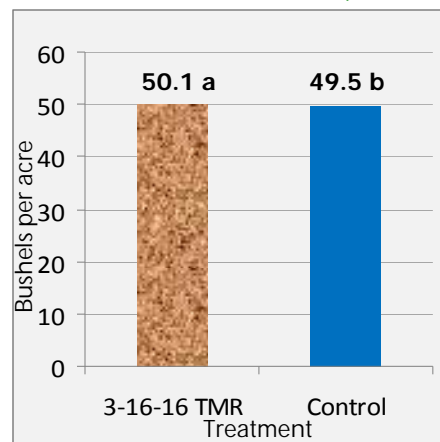
Figure 3. 3-16-16 TMR Treatment (2010)



C.V. = 4.9

LSD_{0.05} = 1.0 bu/ac

Figure 4. 3-16-16 TMR Treatment (2009 & 2010)

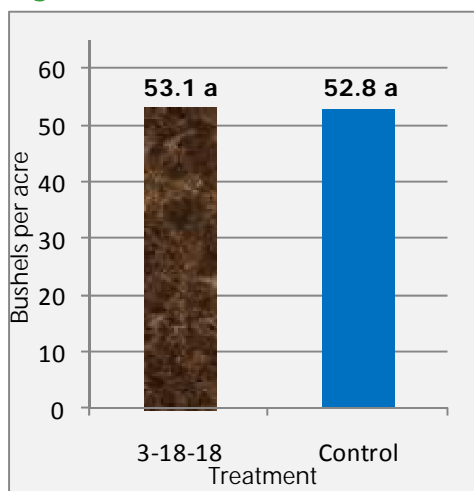


C.V. = 4.4

LSD_{0.05} = 0.6 bu/ac

3-16-16 TMR Treatment Results: There was no statistically significant difference in yield between the 3-16-16 TMR treatment and the unfertilized control when the data from all the locations conducted in 2010 were combined and analyzed. However, when the 2009 and the 2010 data were combined and analyzed over 29 locations, the 3-16-16 treatment showed a 0.6 bushel per acre increase over the unfertilized control. The cost of the 3-16-16 TMR foliar fertilizer program (\$19.46 per acre) exceeded the additional income from the 0.6 yield increase.

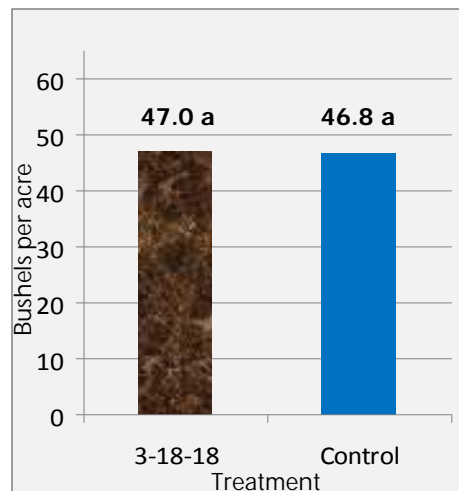
Figure 5. 3-18-18 Treatment (2010)



C.V. = 4.6%

LSD_{0.05} = 1.0 bu/ac

Figure 6. 3-18-18 Treatment (2009 & 2010)



C.V. = 4.2%

LSD_{0.05} = 0.5 bu/ac

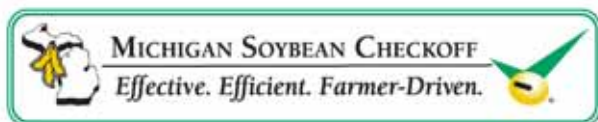
3-18-18 Treatment Results: There was no statistically significant difference in yield between the 3-18-18 treatment and the unfertilized control when the data from all the locations conducted in 2010 were combined and analyzed. This was also the case when the data from the 27 locations conducted in 2009 and 2010 were combined and analyzed. Since the cost of the 3-18-18 foliar fertilizer program was \$20.11 per acre, the 3-18-18 foliar fertilizer program was less profitable than the unfertilized control in 2009 and 2010.



2010 STARS Trial Locations

For 2010, the STARS program evaluated the yield effects of two different foliar fertilizer treatments. Four replications of each treatment and a control were evaluated at 23 locations representing 14 counties. We appreciate the time and effort that the cooperating producers invested in conducting the foliar fertilizer trials in 2009 and 2010. The information contained in this publication would not be possible without their participation.

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