



STARS



Strip Testing At Regional Sites

STARS Strip Trial Program

The testing of new products and/or practices on a field scale basis has long been of interest to soybean producers. Within the last dozen years, the advent of precision agriculture technologies is allowing for testing protocol for large scale field evaluations. The use and availability of global positioning, yield mapping, aerial imaging, remote sensing, etc. is enabling producers to collect data that can be used to evaluate treatments on their farm using science based research techniques.

Accuracy of Strip Trials:

Soybean producer's interest in large scale, field trials done on a field strip basis has been contra to academic's traditionally replicated, randomized, small plot testing and with good reason. Large scale testing, if not done properly, can introduce considerable variation causing result interpretation challenges. We believe it is possible to compromise both small plot and on-farm strip trials by using science based testing procedures.

2008 – Getting Started:

In 2008, the Soybean Checkoff in collaboration with Michigan State University Extension, initiated a

program called *Strip Testing At Regional Sites* (STARS) to encourage grower participation in field scale testing of new production practices.

In designing the STARS program, which is still evolving, a number of goals were discussed, namely:

- ⇒ *The value of an independent, third party evaluator (MSU)*
- ⇒ *Attempting to increase the opportunity for producer profitability*
- ⇒ *The need to have the STARS program grower driven/focused*
- ⇒ *To develop field trials that are "farmer friendly"*
- ⇒ *The possibility for making regional recommendations*
- ⇒ *Conduct replicated, field size strip trials using similar protocol*
- ⇒ *Ability to perform statistical analysis for interpreting the data*
- ⇒ *Produce an easily understood, comprehensive data presentation*
- ⇒ *Allow group members to share data while keeping individual data anonymous*

With these many goals in mind along with the knowledge of a need to be flexible, STARS had good success in our

initial year. Spatial variability in Michigan soils has and will always be an issue. Through the STARS program, managing field data spatially may be an option. Growers currently using precision technology understand that data collection, management and interpretation can be very time consuming and have many challenges in the beginning years. Although the main focus of the STARS program is to be able to collect data from yield monitors to evaluate treatments, it is our long term goal to possibly be able to evaluate treatments using spatial variability – providing the technology is available.

STARS – 2009 and Beyond:

For 2009, STARS is seeking soybean producer input as we remain grower focused/driven. If you have a yield monitor and have interest in meaningful replicated, field scale strip trials to evaluate new production practices, then contact Dave Pratt, MSUE Ag Educator/STARS Coordinator at 989.672.3870 or prattda@msu.edu to confirm your interest in the 2009 STARS program.

STARS Coordinators Summary

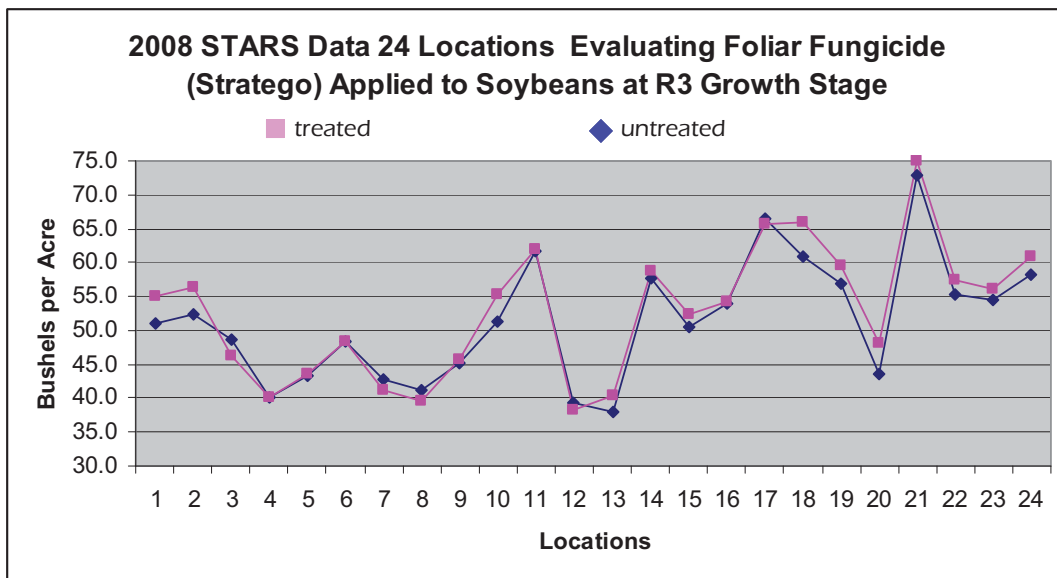
Based on the data from the 2008 STARS program it appears that the decision on whether to apply a foliar fungicide to soybeans is not black and white. Although on average (24 locations) a yield response of 1.2 bushel was realized, some locations lost yield while others had an increase.

It appears that rainfall in August did increase the yield response of an application of Stratego fungicide.

The 2008 STARS data would indicate that decisions to apply a foliar fungicide would need to include current yield potential and projection of August rainfall. Soybeans with a very high yield potential (full canopy, adequate population and moisture) may benefit from an application of a foliar fungicide if rainfall were to continue through August. If August turns dry and hot than yield response from a foliar fungicide would be expected to go down.



Figure 1 indicates the yield response of the 24 STARS fungicide locations with the yield response ranging from a minus 2.3 bu/acre to a plus 5.1 bu/acre.



2008 STARS Study (24 locations) Evaluating if Foliar Fungicide Applied at R3 Growth Stage will Result in Increased Yield

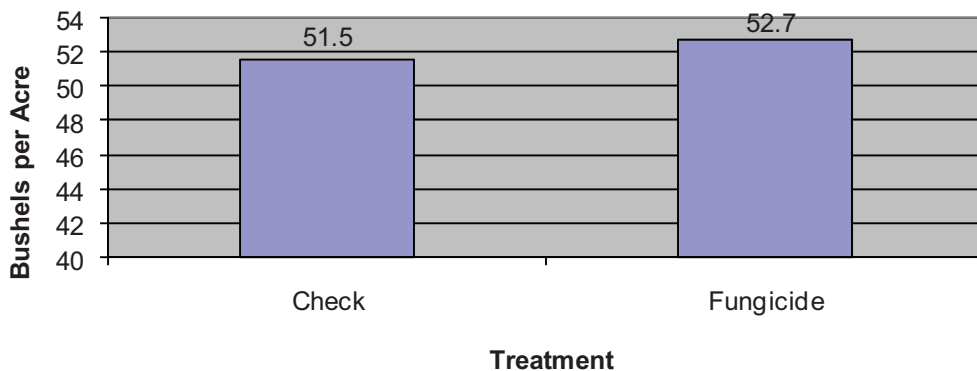


Figure 2 summarizes the yields obtained from the 24 treated locations and the accompanying checks. As the LSD of .4 bu/acre and the CV of 3.2 indicates the data is statistically very good. On average, a yield increase of 1.2 bu/acre occurred which is statistically significant at the .05 level.

Figure 3 summarizes the average economic return if using a soybean price of \$8.00/bu and an application and fungicide cost of \$18.00/acre which would result in a reduced income per acre of \$8.40 on average at these 24 locations.

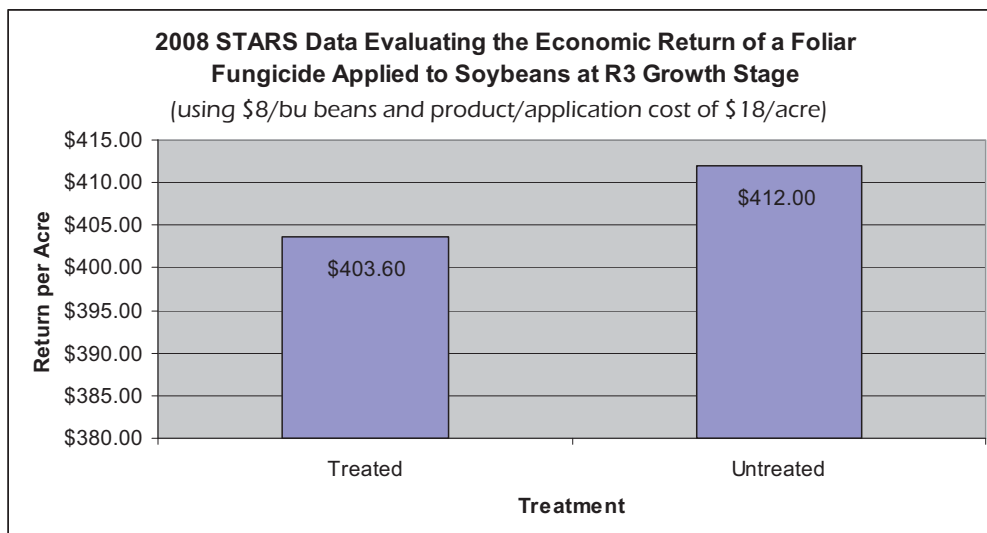




Figure 4 is an effort to further analyze the STARS data by comparing rainfall totals in August by grouping the grower locations into 3 regions, South (9), Central (7) and Thumb (8). It was apparent that the different regions received very different rainfall amounts in August. Rainfall amounts were used from the Michigan Automated Weather Network (MAWN). It appears that as rainfall in August increased so did the yield response from an application of Stratego Fungicide at the R3 growth stage.

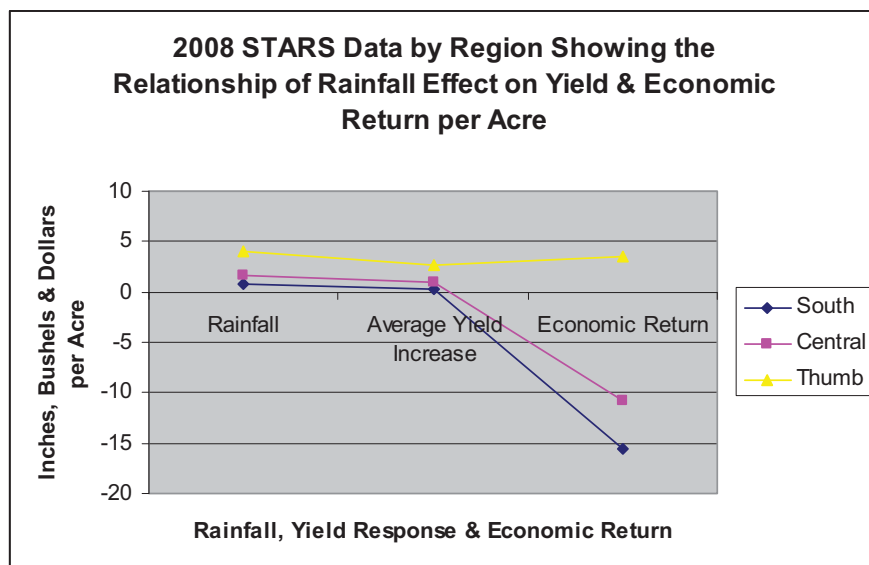
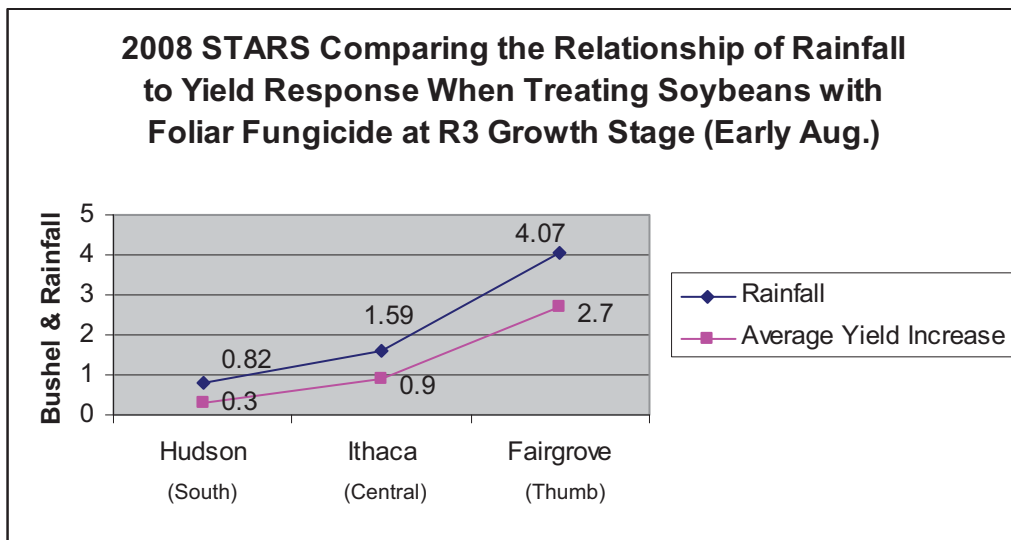


Figure 5 is an effort to graphically depict the relationship of regional August moisture, yield responses and the associated economics for each region. Data extrapolation would indicate inadequate moisture in the south and central regions resulted in a small yield increase of 0.8 bu/acre and 1.5 bu/acre respectively resulting in a decrease in economic return while the thumb regions 2.7 bu/acre yield increase resulted in a return of \$3.60 /acre.

Data analysis indicated that 9 of the 24 locations either broke even or increased economic returns when compared to the check. Table 1 is a spread sheet design that allows one to determine the yield increase needed when experiencing certain product/application costs to consider economic returns.

Economic Return Based on Price Per Bushel and Yield Increase							
Price/Bushel	\$4	\$5	\$6	\$7	\$8	\$9	\$10
Bushel Increase							
1	-\$14	-\$13	-\$12	-\$11	-\$10	-\$9	-\$8
2	-\$10	-\$8	-\$6	-\$4	-\$2	\$0	\$2
3	-\$6	-\$3	\$0	\$3	\$6	\$9	\$12
4	-\$2	\$2	\$6	\$10	\$14	\$18	\$22
5	\$2	\$7	\$12	\$17	\$22	\$27	\$32
6	\$6	\$12	\$18	\$24	\$30	\$36	\$42



2008 Soybean Fungicide Trial Locations

For 2008, the STARS program evaluated the yield and economics of a foliar fungicide (STRATEGO) applied to soybean at growth stage R3 at 34 locations throughout the soybean producing areas of Michigan. We were able to combine data from 24 trial locations to evaluate the effectiveness of a foliar fungicide looking at individual sites, regional locations, all locations and by rainfall in August.

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