

Soybean R3 Foliar Fungicide Trial: 2020 Location Results

Key question: Are fungicides applied at R3 effective at reducing foliar disease and increasing yield?

Treatments: Strips with fungicide applied at R3 vs. strips with no fungicide application.

*Farmer's choice of product used.

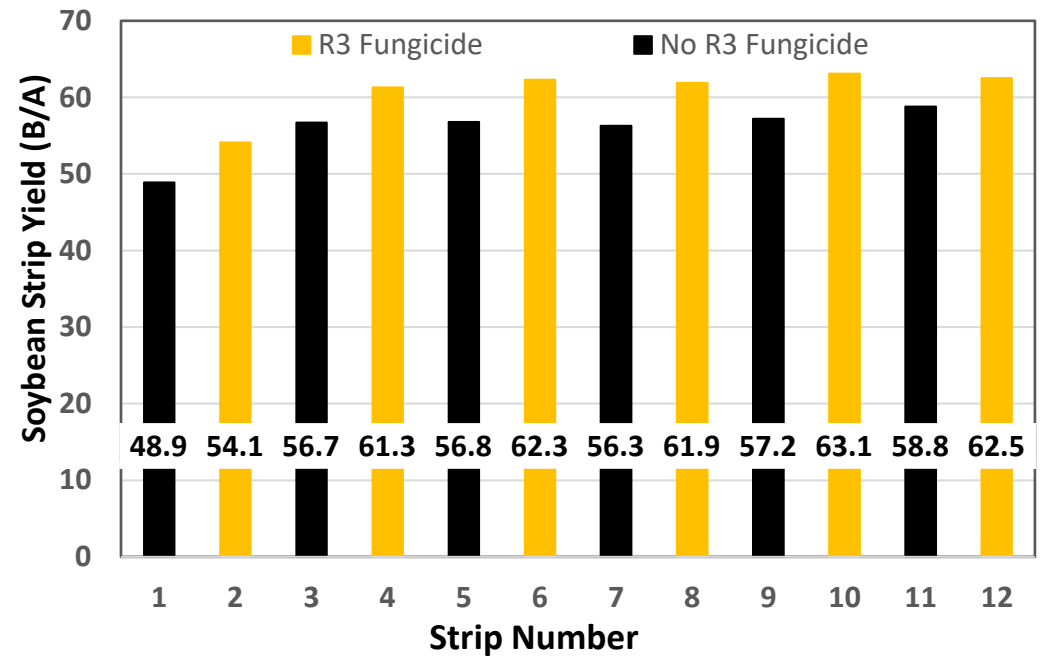
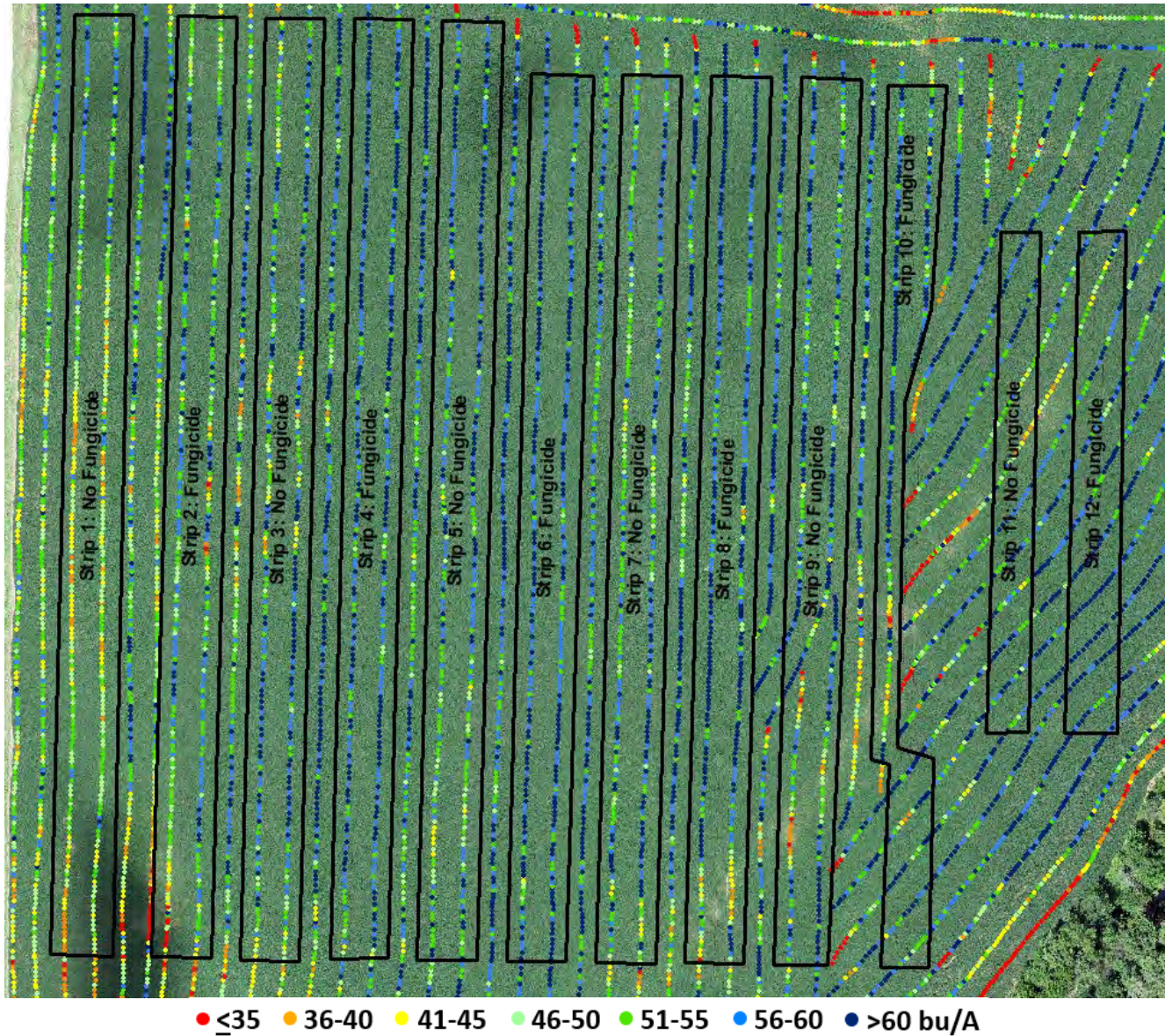
This on-farm research was supported by the Missouri Soybean Merchandizing Council (award No. 18-415) and University of Missouri Extension.

This on-farm research was only possible with the cooperation of Missouri Soybean farmers who volunteered to implement trials on their fields and the Regional MU Extension faculty that supported them.

Soybean R3 Fungicide Trial 2020 Site 2001 Holt County

Summary of yield data. There is evidence that R3 fungicide increased yield at this location.

Treatments	Mean (SD)	Delta Control
	<i>bushels/acre</i>	
All strips	58.3 (4.2)	--
Control (N)	55.8 (3.5)	--
R3 Fungicide (F)	60.9 (3.4)	5.1



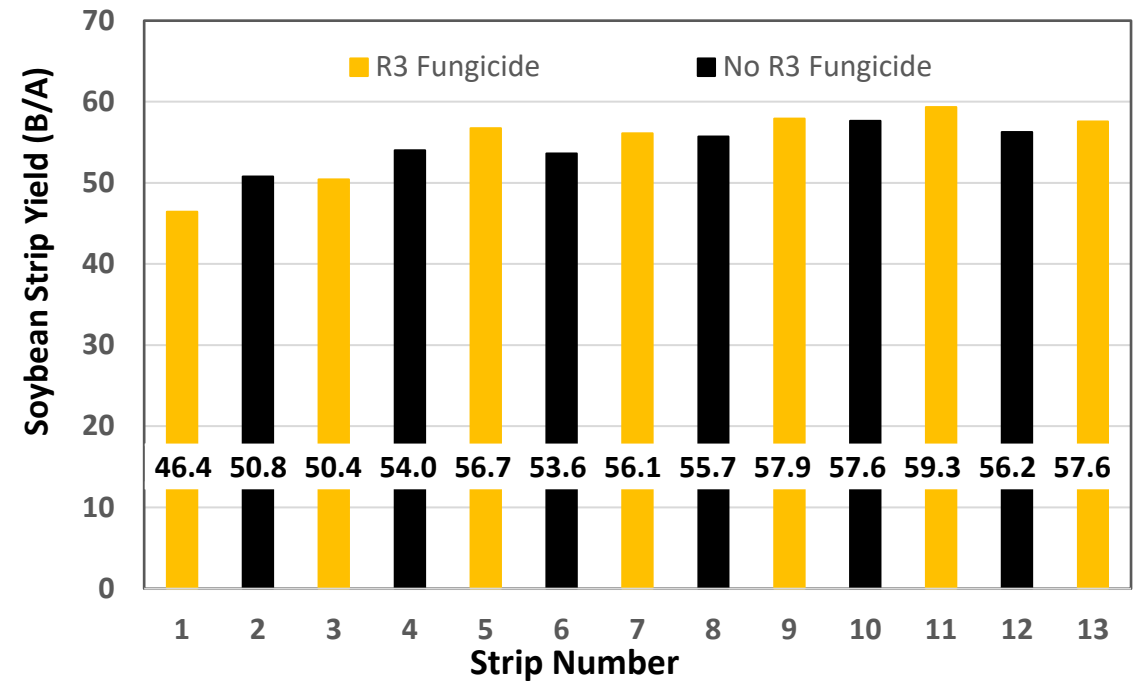
Soybean R3 Fungicide Trial 2020 Site 2002 Cape Girardeau

There is limited evidence that R3 fungicide increased yield at this location.

Treatments	Mean	Delta Control
	<i>bushels/acre</i>	
All strips	54.3 (4.0)	--
Control (N)	54.7 (3.4)	--
R3 Fungicide (F)	54.9 (4.7)	0.2



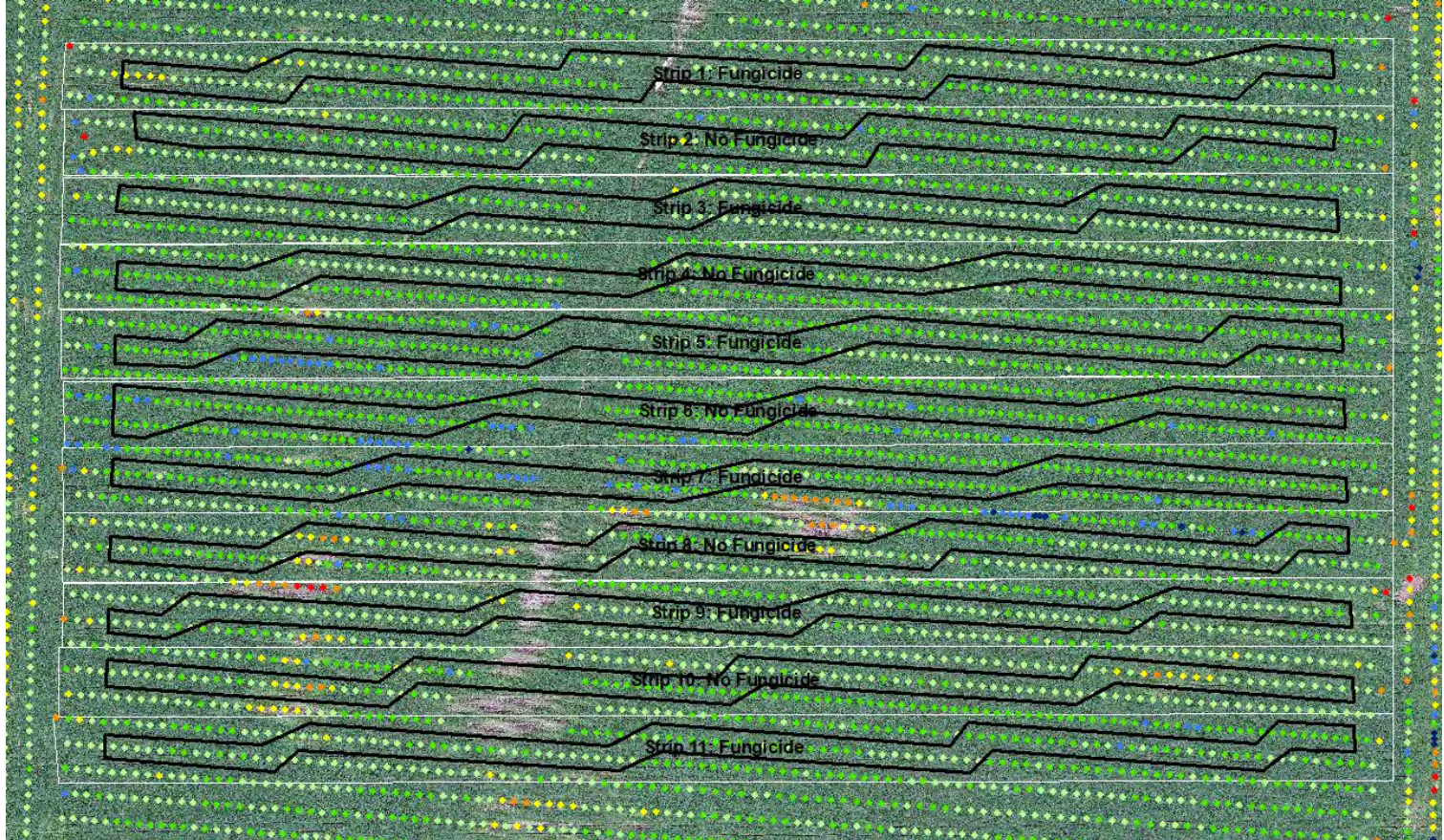
Map of soybean yield and areas used to determine strip yield. Soybean harvested 11/5/2020; imagery taken at 100m on 9/9/2020.



Soybean R3 Fungicide Trial 2020 Site 2003 Montgomery County

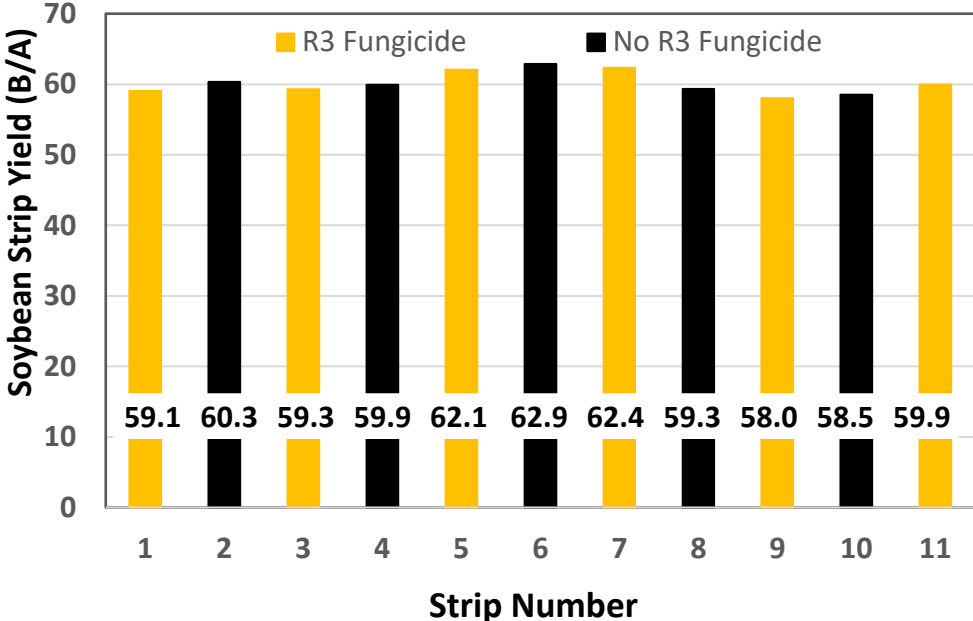
Treatments	Mean (SD)	Delta Control
	<i>bushels/acre</i>	
All strips	60.2 (1.6)	--
Control (N)	60.2 (1.7)	--
R3 Fungicide (F)	60.1 (1.8)	-0.1

Conclusion: There was no evidence that fungicide increased yield.



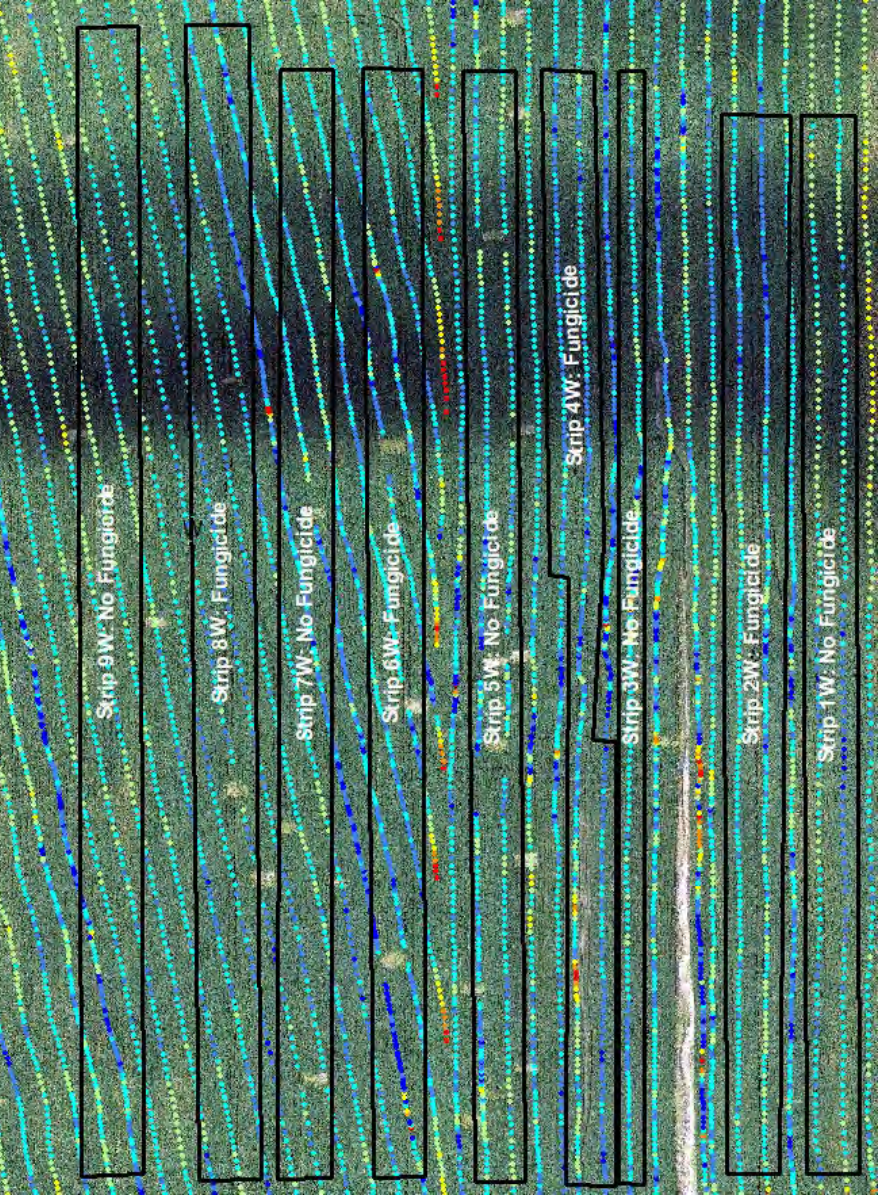
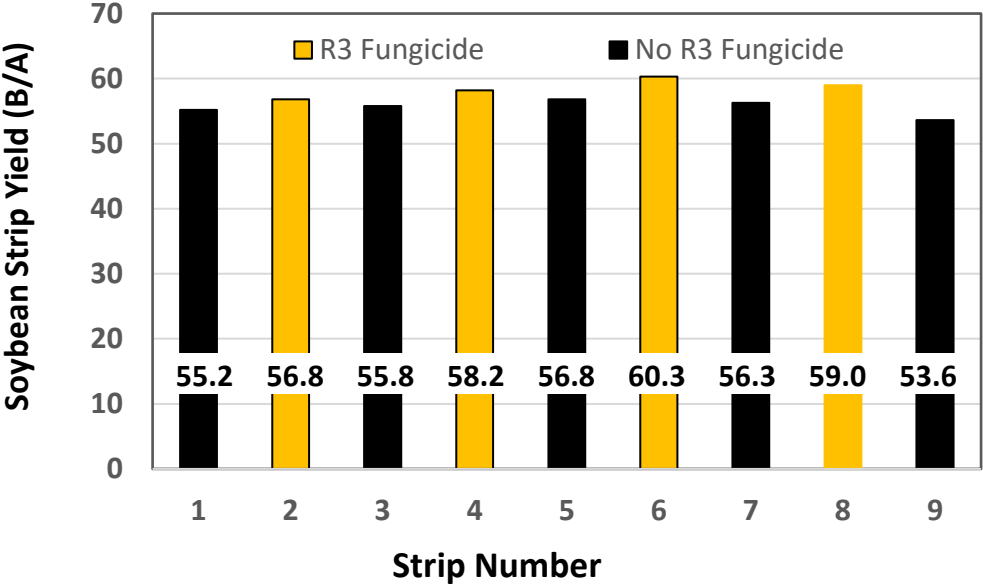
● ≤ 45 ● 46-50 ● 51-55 ● 56-60 ● 61-65 ● 66-70 ● >70 bu/A

Map of soybean yield and areas used to determine strip yield. Soybean harvested 10/12/2020; imagery taken at 100m on 9/15/2020.
Note black lines outline parts of yield pass completely within each treatment strip.



Soybean R3 Fungicide Trial 2020 Site 4W Warren County

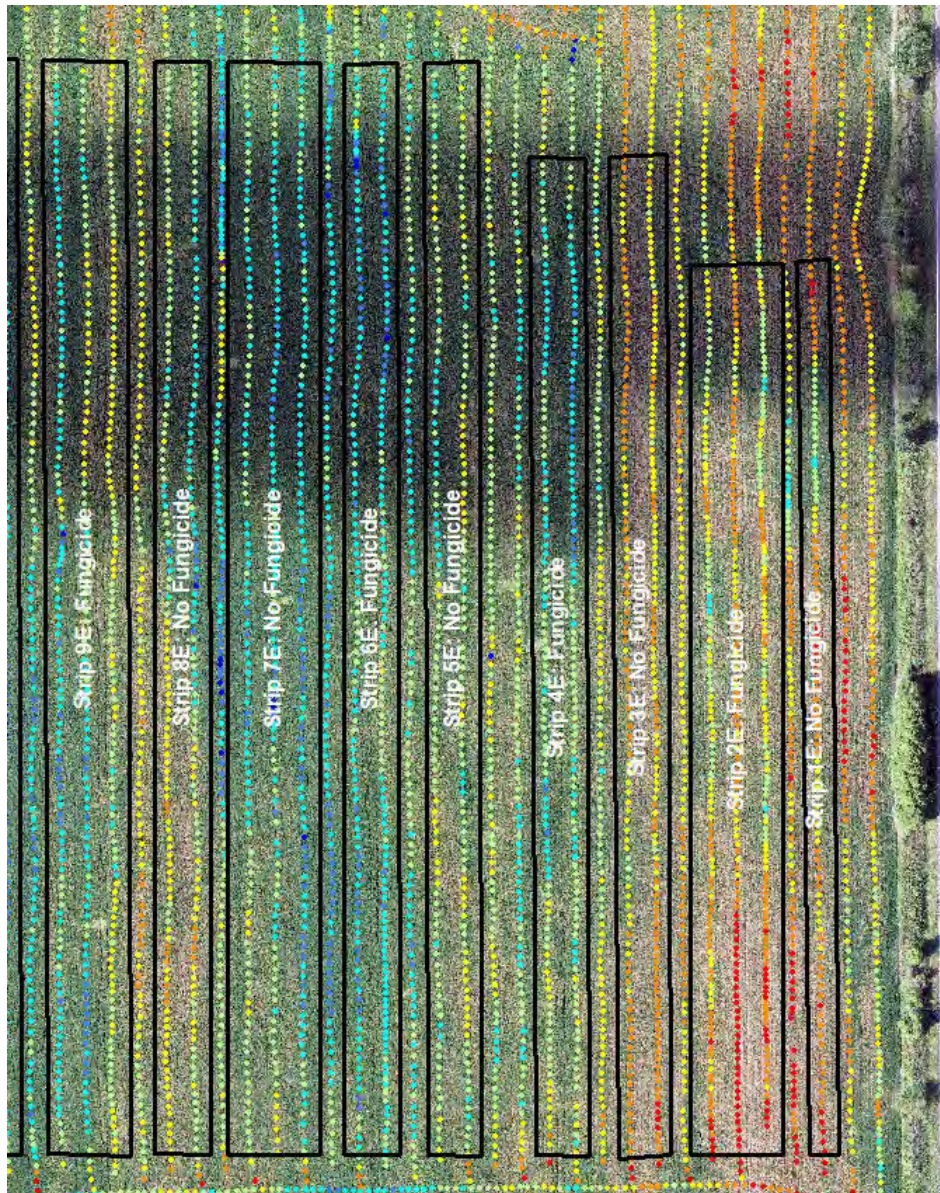
Treatments	Mean (STD)
<i>bushels per acre</i>	
All strips	56.9 (2.0)
R3 Fungicide (F)	58.6 (1.5)
Control (N)	55.5 (1.2)
Treatment difference	3.1



Map of soybean yield and areas used to determine strip yield. Soybean harvested 10/14/2020; imagery taken at 100m on 8/26/2020. This was the east portion of the field heavily affected by Sudden Death Syndrome.

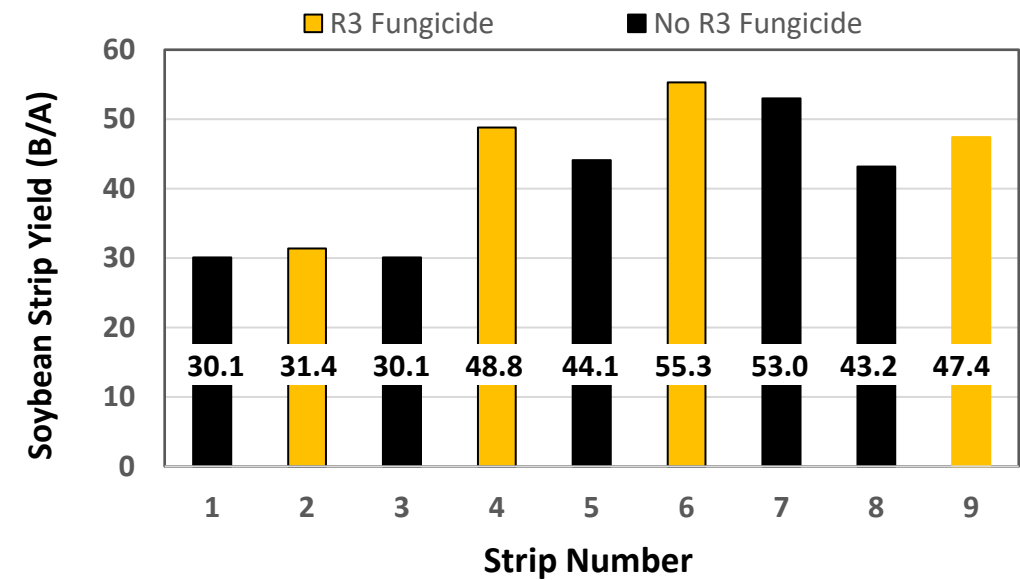
Conclusions West Side (Low SDS): This field was split because the east side was heavily affected by SDS. Fungicide increased yield. The 90% credible interval for yield benefit of fungicide was 1 to 5 bushels per acre (mid-point 3 bushels per acre).

Soybean R3 Fungicide Trial 2020 Site 4E Warren County



Map of soybean yield and areas used to determine strip yield. Soybean harvested 10/14/2020; imagery taken at 100m on 8/26/2020. This was the east portion of the field heavily affected by Sudden Death Syndrome.

Treatments	Mean (STD)
<i>bushels per acre</i>	
All strips	42.6 (9.8)
R3 Fungicide (F)	45.7 (10.2)
Control (N)	40.1 (9.9)
Treatment difference	5.6



Conclusions East Side (high SDS): This field was split because the east side was heavily affected by SDS. Yields were highly variable. There was a 50% chance the yield benefit of fungicide was greater than five bushels. There was a 25% chance there was no yield benefit of fungicide.

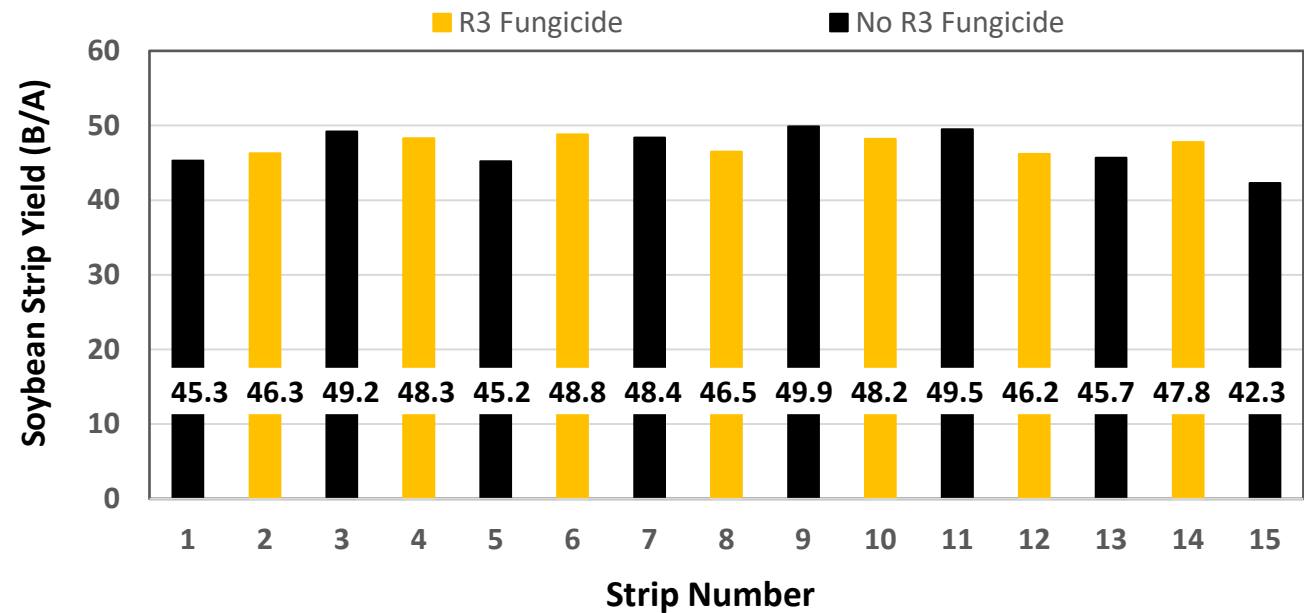
Soybean R3 Fungicide Trial Site 2005 Franklin County



● <30 ● 31-35 ● 36-40 ● 41-45 ● 46-50 ● 51-55 ● >55 bu/A

Map of soybean yield and areas used to determine strip yield.
Soybean harvested 10/11-12/2020; imagery taken at 100m on
8/20/2020.

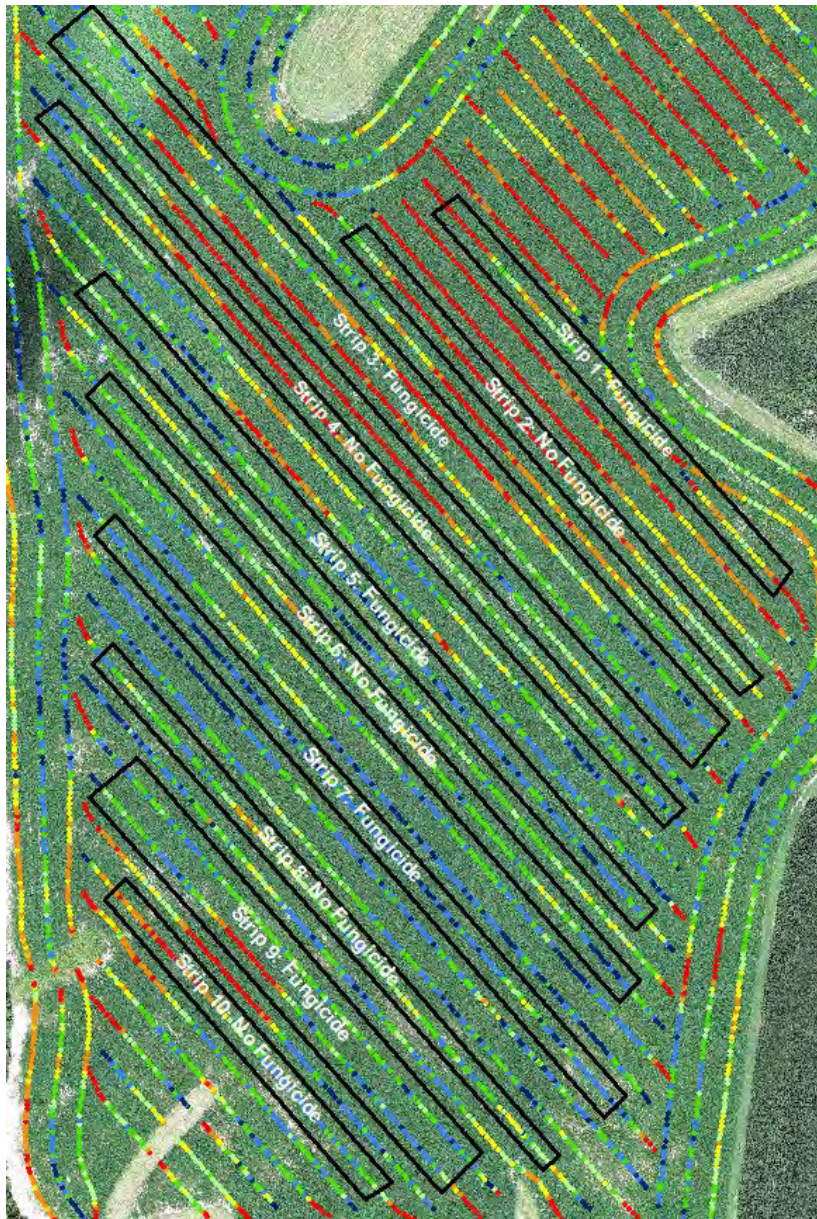
Treatments	Mean	Delta Control
	<i>bushels/acre</i>	
All strips	47.2 (2.1)	--
Control (N)	46.9 (2.7)	--
R3 Fungicide (F)	47.4 (5.9)	0.5



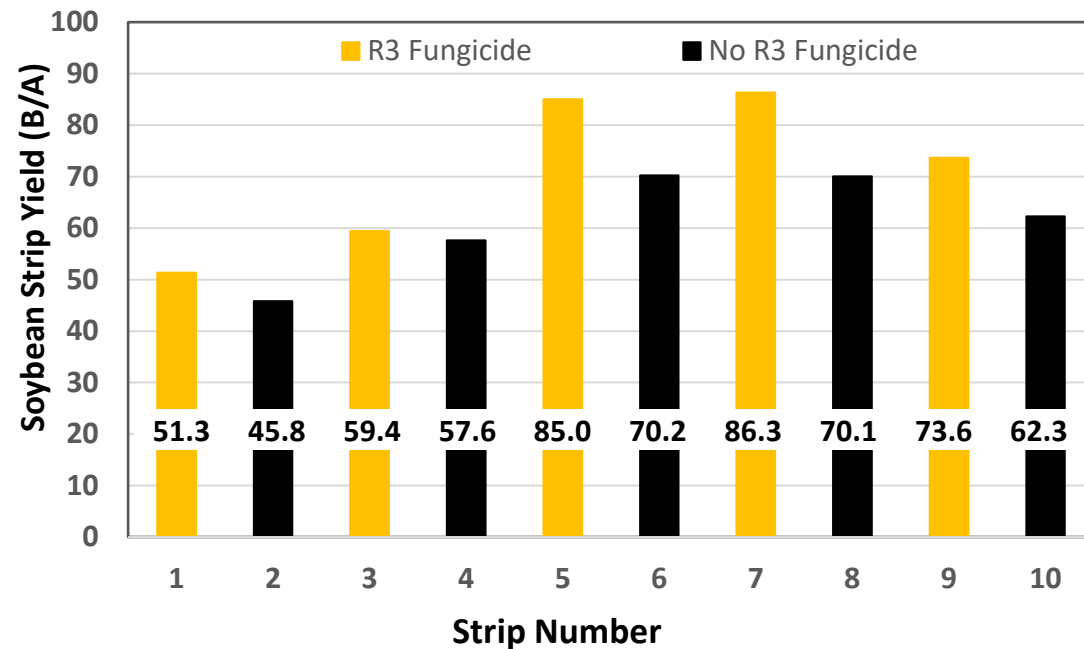
Conclusions: There was little evidence that fungicide increased yield. The 90% range in estimated benefit was -1.9 to 1.5 bushels per acre, with the 50% probability of benefit estimated to be 0.1 bushels per acre.

Soybean R3 Fungicide Trial 2020 Site 2006 Lincoln County

Treatments	Mean (SD)	Delta Control
	<i>bushels/acre</i>	
All strips	66.2 (13)	--
Control (C)	61.2 (10)	--
R3 Fungicide (F)	71.1 (15)	9.9



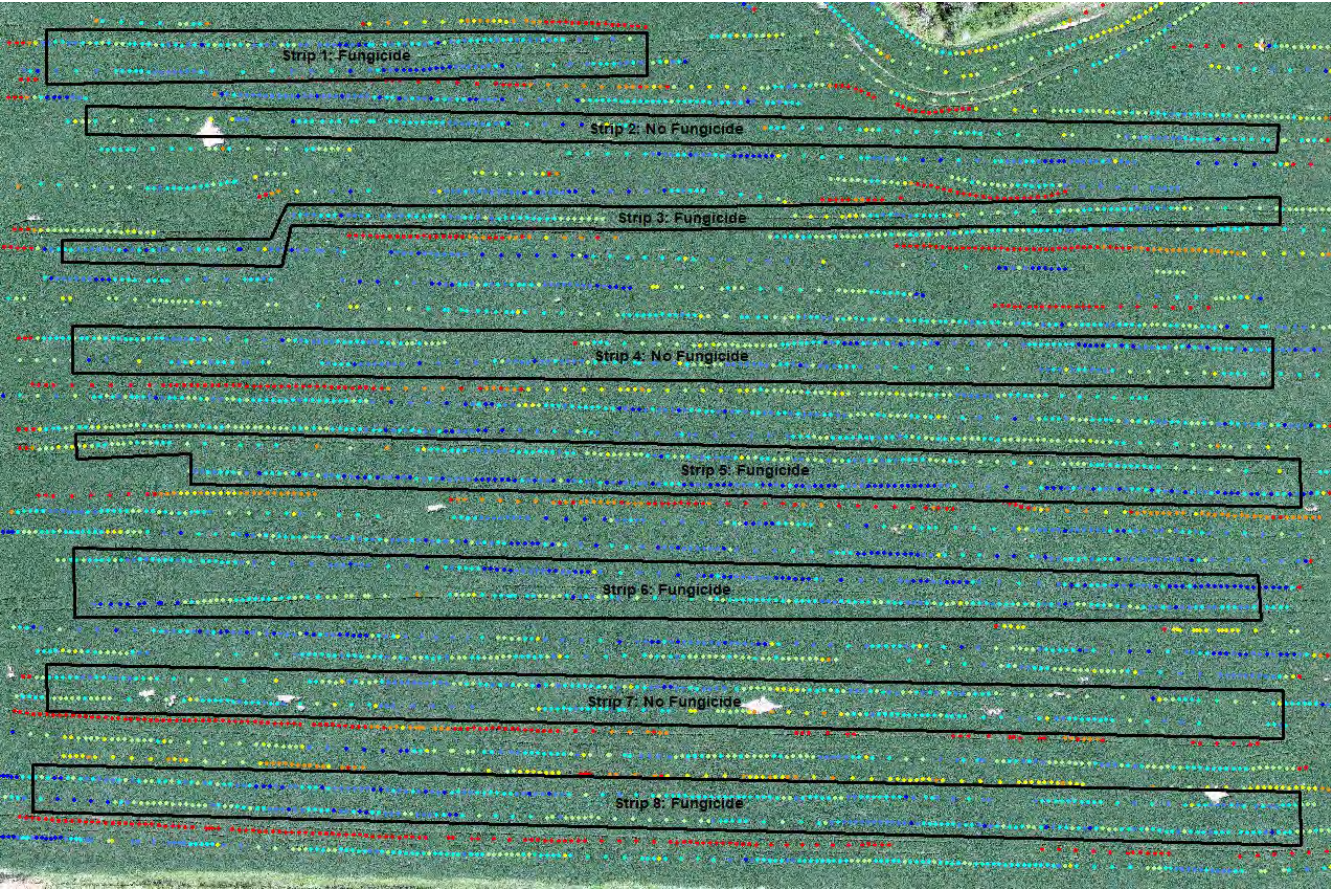
Map of soybean yield and areas used to determine strip yield. Soybean harvested 10/18/2020; imagery taken at 100m on 8/26/2020.



Conclusions: R3 fungicide increased yield at this location. There was a 95% change the benefits was greater than six bushels per acre.

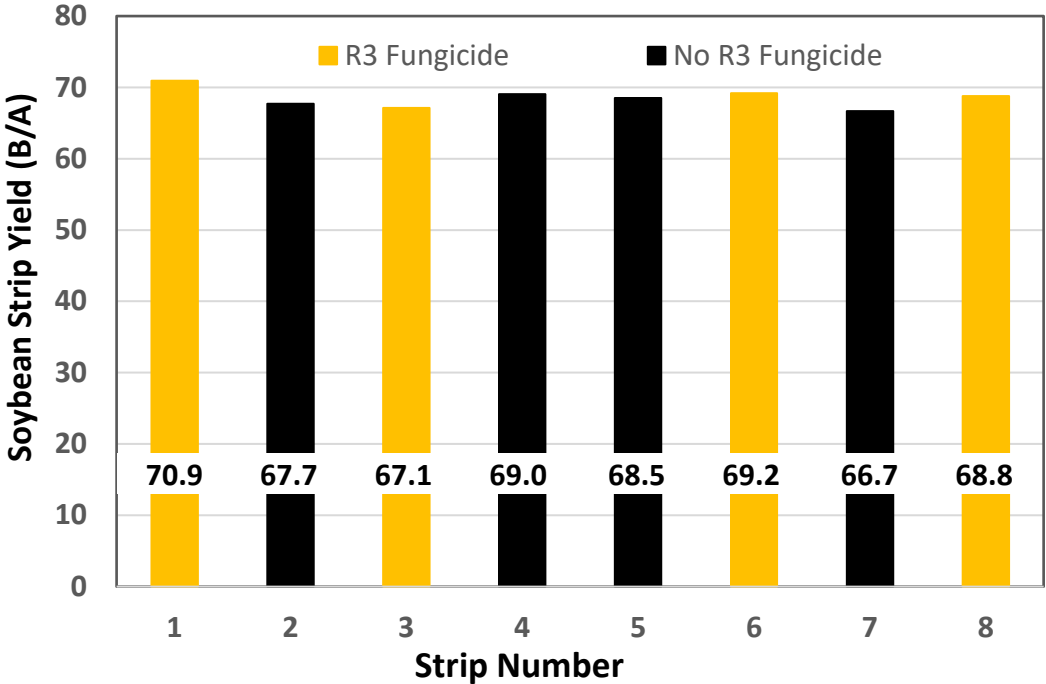
Soybean R3 Fungicide Trial 2020 Site 2007 Audrain County

Treatments	Mean (SD)	Delta Control
	<i>bushels/acre</i>	
All strips	68.5 (1.3)	--
Control (C)	68.0 (1.0)	--
R3 Fungicide (F)	69.0 (1.6)	1.0



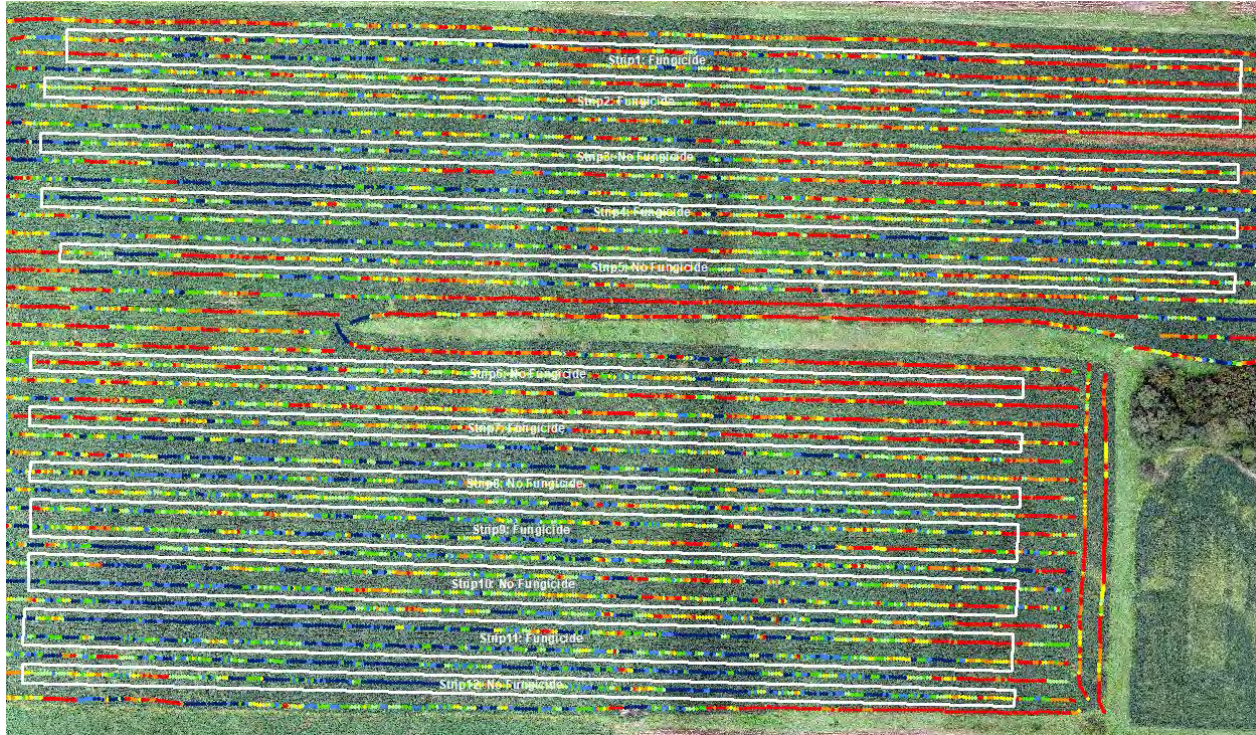
● ≤50 ● 51-55 ● 56-60 ● 61-65 ● 66-70 ● 71-75 ● >75 bu/A

Map of soybean yield and areas used to determine strip yield. Soybean harvested 11/3/2020; imagery taken at 100m on 9/3/2020. At this location there were many partial passes. The plot areas are full swath pass data used for calculating yield.



Conclusions: There was little evidence that R3 herbicide increased yield at this location.

Soybean R3 Fungicide Trial 2019 Site 2008 Dade County

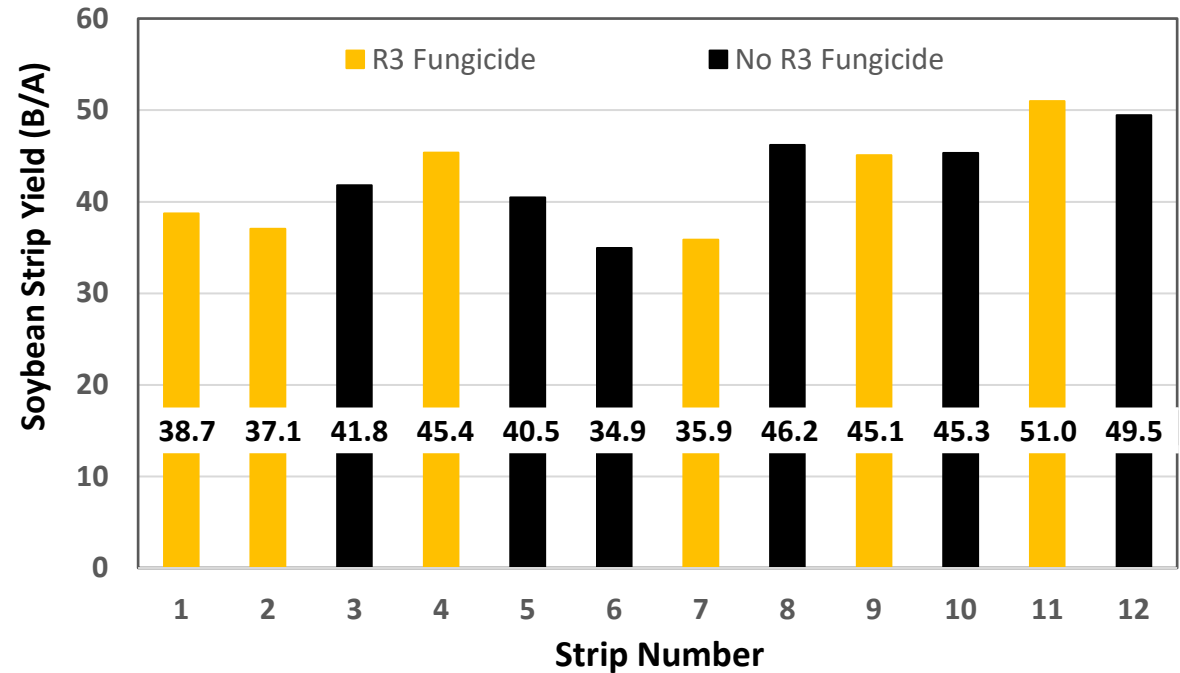


● ≤30 ● 31-35 ● 36-40 ● 41-45 ● 46-50 ● 51-55 ● >55 bu/A

Map of soybean yield and areas used to determine strip yield. Soybean harvested 11/4/2020; imagery taken at 100m on 9/4/2020. At this location there were many partial passes. The plat areas are full swath pass data used for calculating yield.

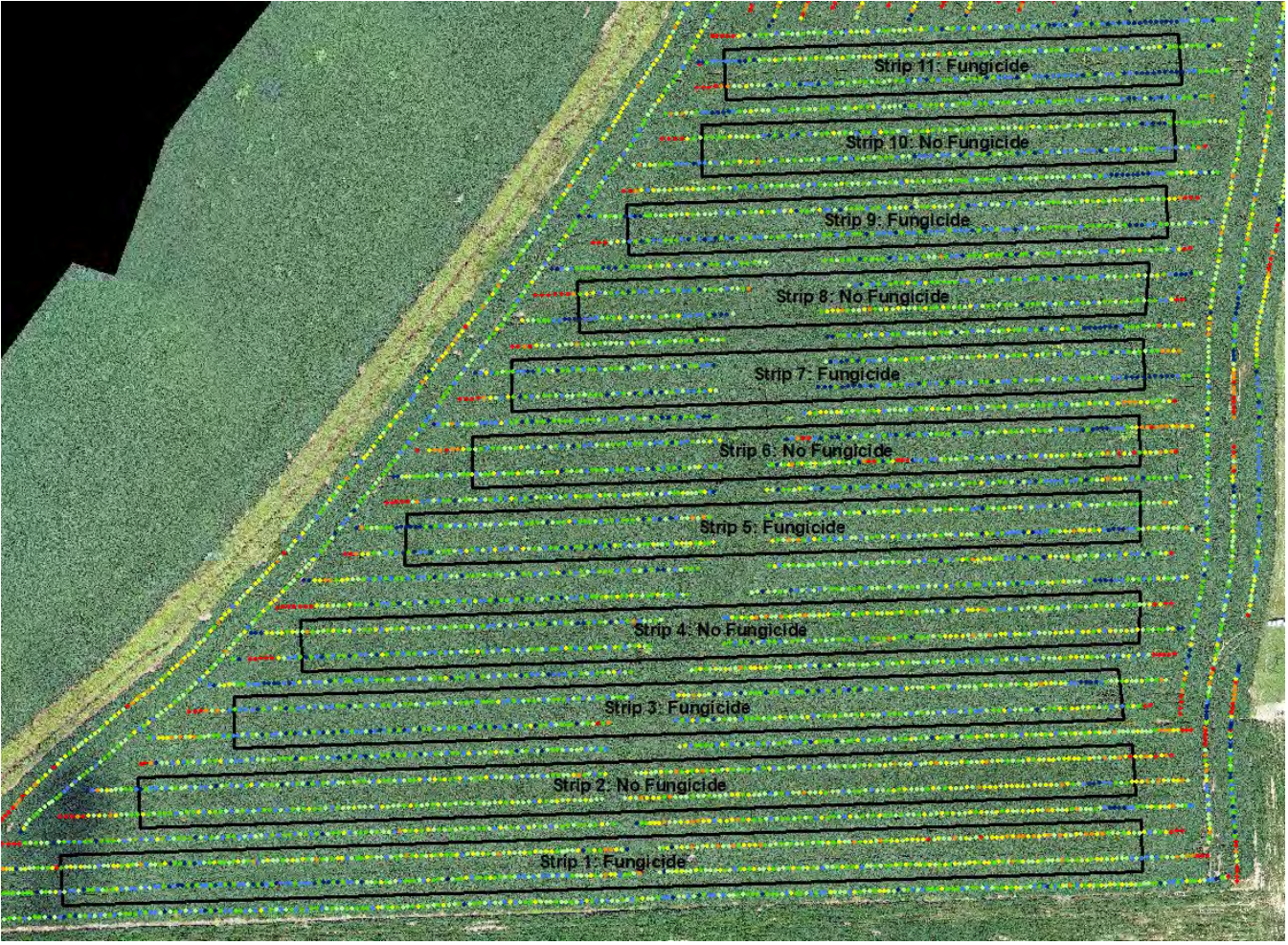
Conclusion. There was no evidence that R3 fungicide increased yield. The credible interval was -4 to 4 bushels per acre (mid point 0). This is consistent with no response. Yields at this location were variable and affected by drought.

Treatments	Mean (SD)	Delta Control
	<i>bushels/acre</i>	
All strips	42.6 (5.3)	--
Control (C)	43.0 (5.1)	--
R3 Fungicide (F)	42.2 (5.9)	-0.8



Soybean R3 Fungicide Trial 2020 Site 2009 Scott County

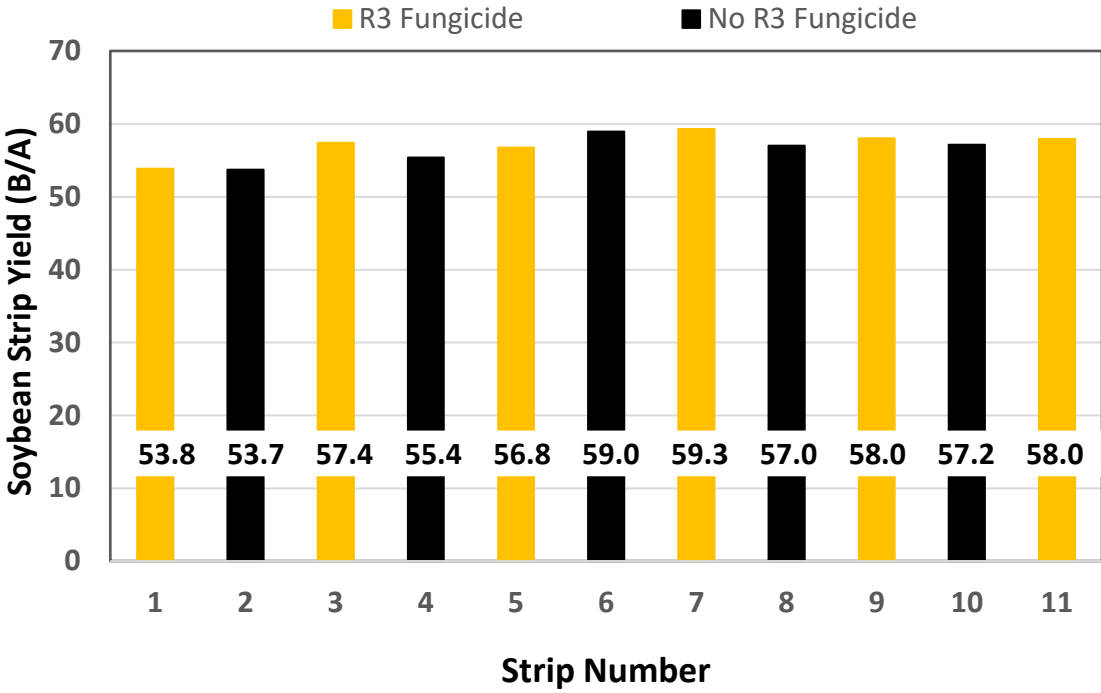
Treatments	Mean	Delta Control
	<i>bushels/acre</i>	
All strips	56.9 (1.9)	--
Control (N)	56.5 (2.0)	--
R3 Fungicide (F)	57.2 (1.9)	0.7



● <40 ● 41-45 ● 46-50 ● 51-55 ● 56-60 ● 61-65 ● >65 bu/A

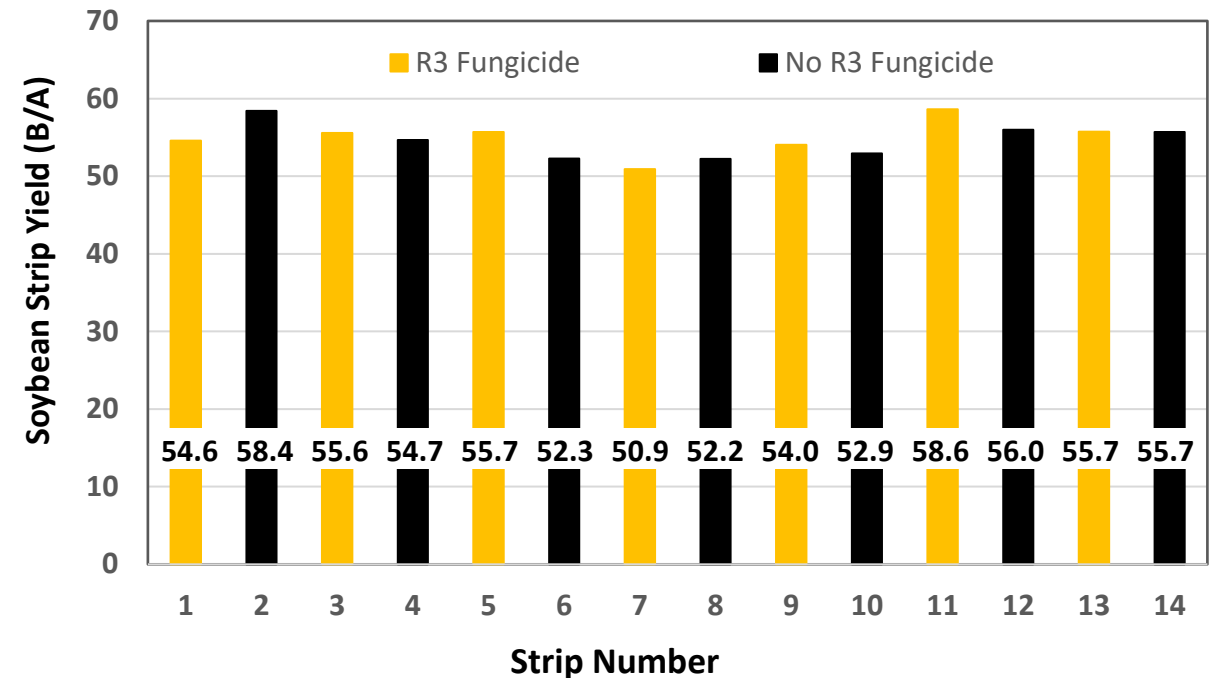
Map of soybean yield and areas used to determine strip yield. Soybean harvested 11/2/2020; imagery taken at 100m on 9/9/2020. Final strip layout reflects areas of the field not affected by stand issues not related to R3 Fungicide application.

Conclusion: There was limited evidence that fungicide increased yield. The 90% probability range in estimated benefit was 0. to 2.0 bushels per acre (mid-point 1 bushels per acre). Note that strip 6 had a high amount of variability. Removing that strip slightly increased the odds that fungicide increased yield (90% range in estimated benefit 0.6 to 2.6 bushels per acre).

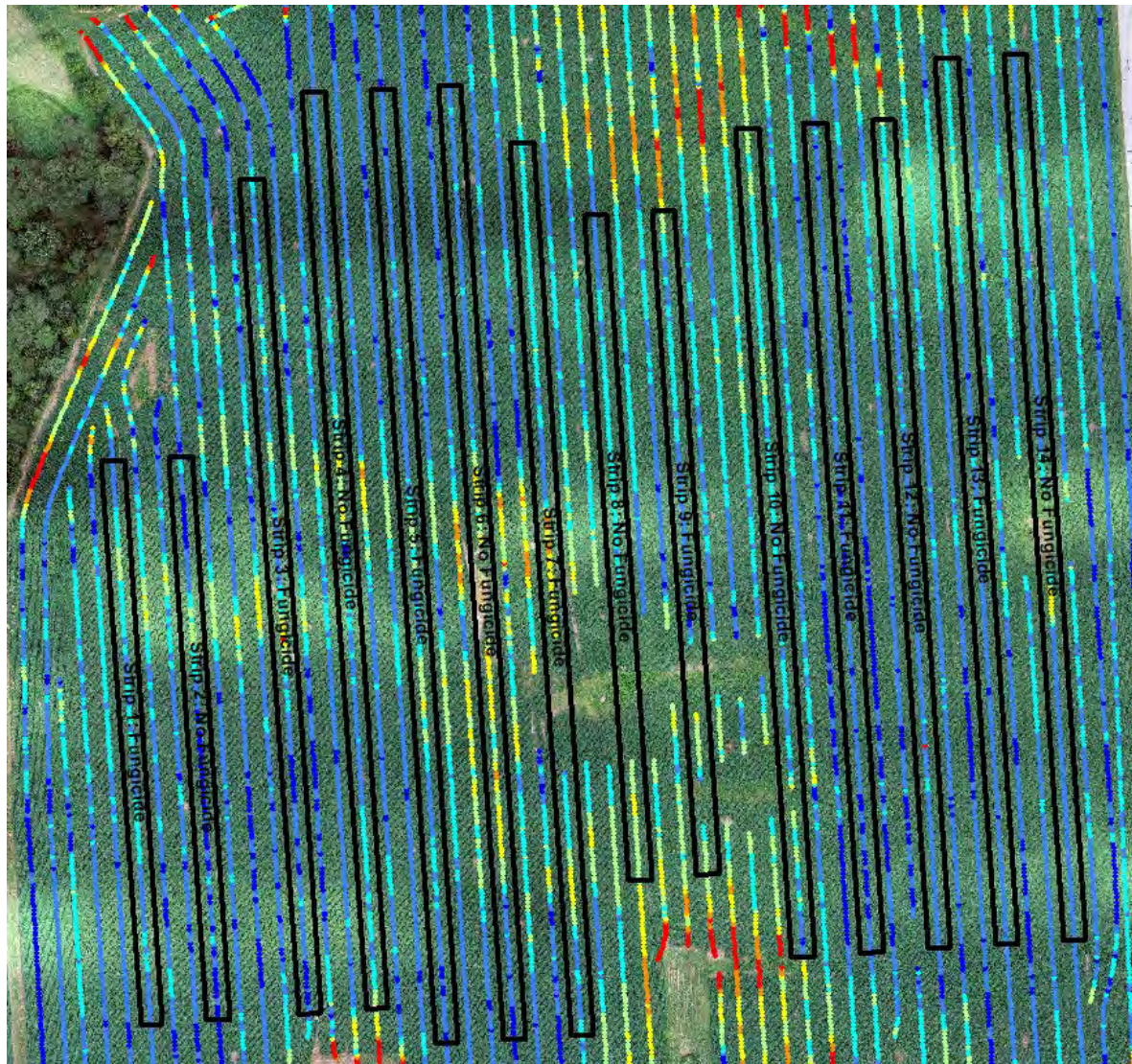


Soybean R3 Fungicide Trial 2020 Site 2010 Perry County

Treatments	Mean (SD)	Delta Control
	<i>bushels/acre</i>	
All strips	54.8 (2.2)	--
Control (N)	54.6 (2.3)	--
R3 Fungicide (F)	55.0 (2.3)	0.4



Conclusion: There was limited evidence that fungicide increased yield. The 90% probability range in estimated benefit was -1.5 to 2.5 bushels per acre (mid-point 0.5 bushels per acre).



● ≤ 35 ● 36-40 ● 41-45 ● 46-50 ● 51-55 ● 56-60 ● >60 bu/A

Map of soybean field and areas used to determine strip yield. Soybean harvested 11/2/2020; imagery taken at 100m on 8/8/2020. Final strip layout reflects areas of the field not affected by stand issues not related to R3 Fungicide application.