



Components and science behind plant performance

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Syngenta Crop Protection



Sometimes it was just disease control



Quadris 15 oz alt Bravo 2pt + Nova (7 Day Schedule)

Sometimes it was control of secondary fungi

Tilt

Quadris
FUNGICIDE

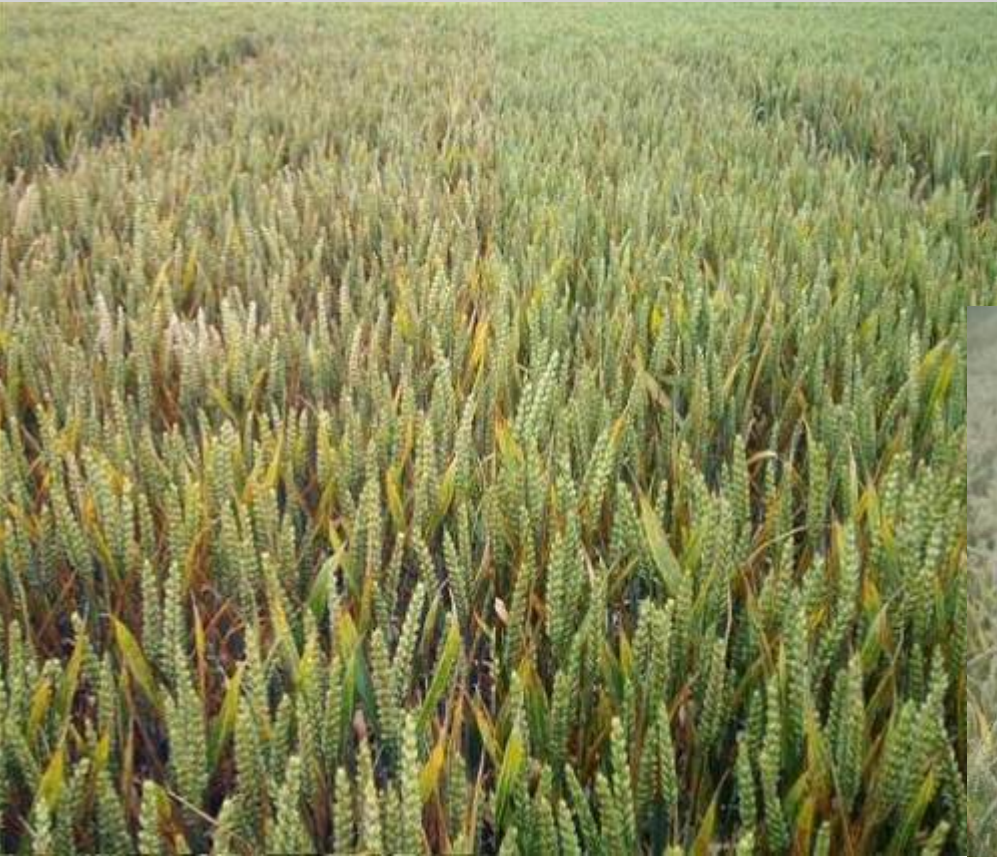
Tilt®



i.e. - Sooty molds



However, often it was more than just disease control or sooty mold control



Untreated

Quadris®

They were bigger, healthier, and greener



2x triazoles



2x Quadris

Harvest Information: October 1, 2005
Quadris/Warrior block
12.9 Acres yielding 69.2 Bu/A
Untreated Block
13.0 Acres yielding 57.4 Bu/A

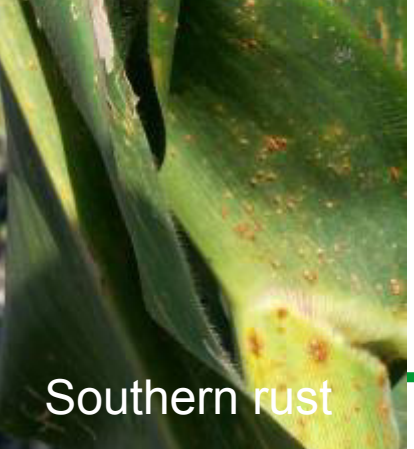
11.8 More Bushels



240 Feet Treated
Quadris 6.2 oz/A
Warrior 2.8 oz/A

August 28, 2005
South Charleston, Ohio

Corn Diseases That Nibble Away Yields



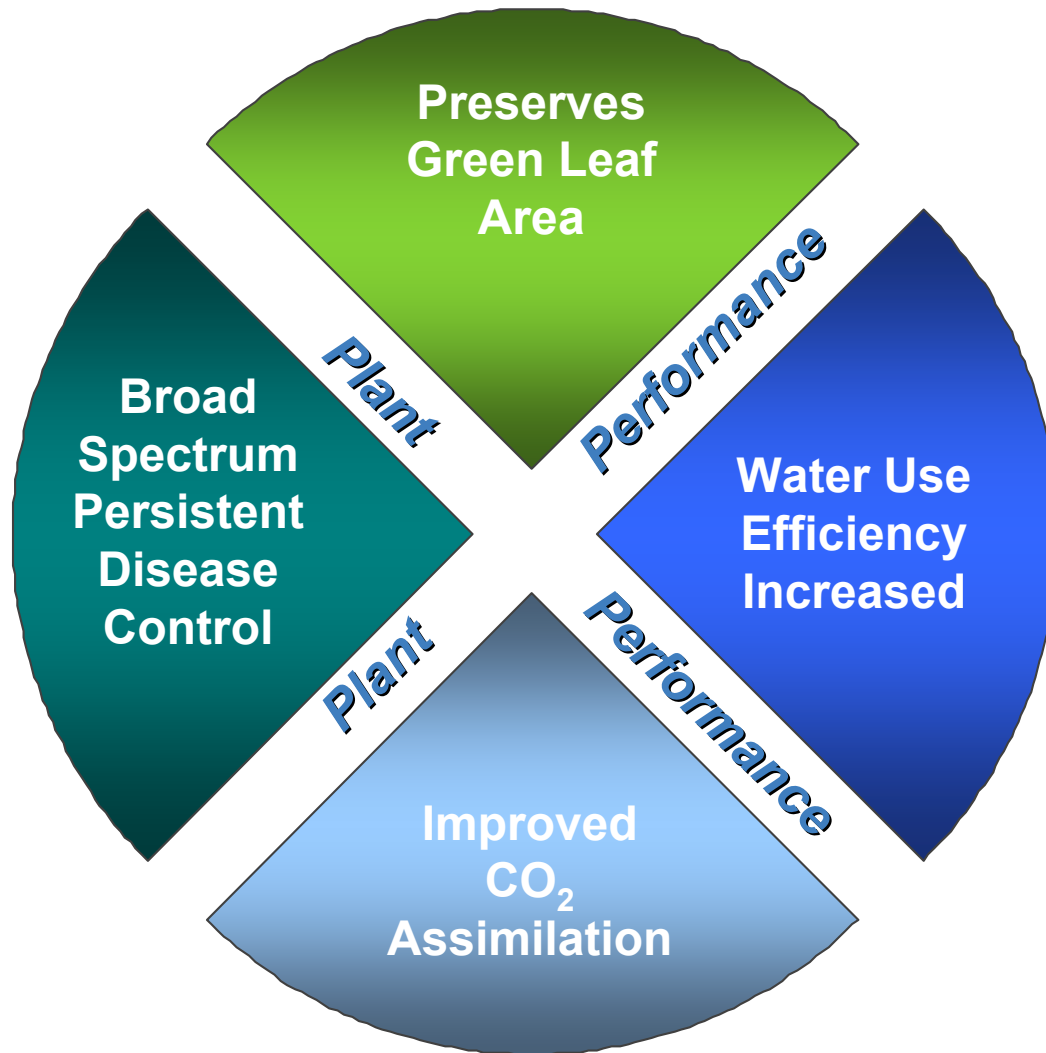
- Gray leaf spot
- Common rust
- Southern rust
- Northern corn leaf blight
- Northern corn leaf spot
- Southern corn leaf blight
- Eyespot



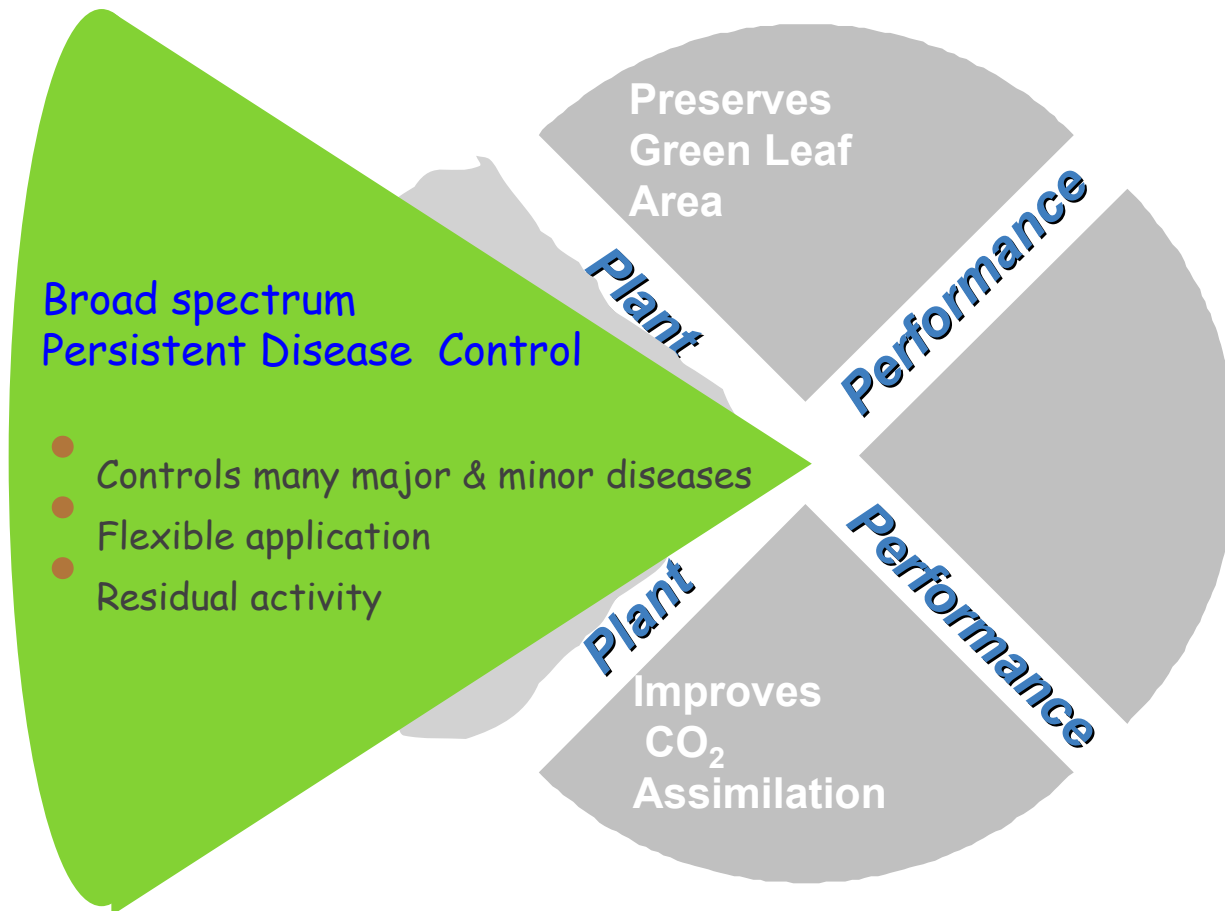
Understanding physiological effects of strobilurins

- Syngenta has invested in over 20 man years of effort into understanding the effects that azosystrobin has on plant physiology
 - University research
 - Post docs
- Internal research
- In addition there is a plethora of literature on physiological effects of other strobilurins
- The main physiological attributes come down to
 - CO₂ assimilation
 - Water use efficiency (reducing transpiration)
 - Green leaf area (delaying senescence)

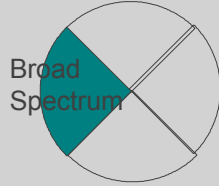
Azoxystrobin Plant Performance: Effects on the Corn Plant



Azoxystrobin Plant Performance: Effects on the Plant

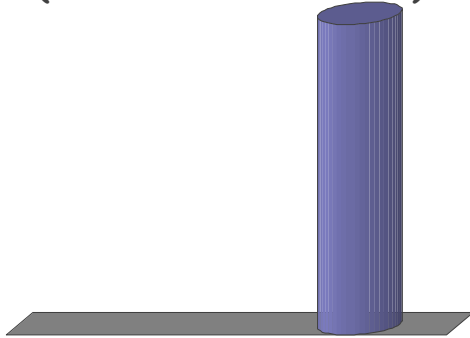


Azoxystrobin - Broad Spectrum Persistent Disease Control

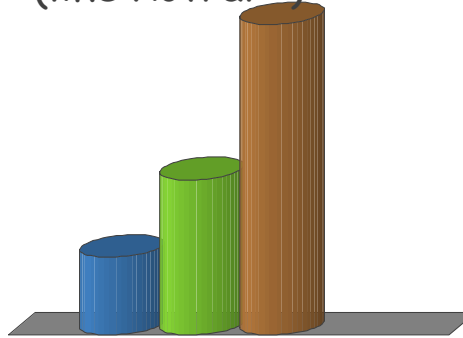


There are 4 classes of fungi. Strobilurins are the only fungicide class that control fungi in all four classes.

Phenylamides
(like Ridomil Gold®)



Dicarboximides
(like Rovral®)



Class

1



Ascomycetes, e.g.

Soybean pod and stem blight

2



Basidiomycetes, e.g. Soybean rusts & Aerial blight

3

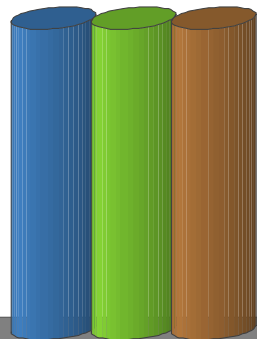


Deuteromycetes, e.g. Alternaria leaf spot

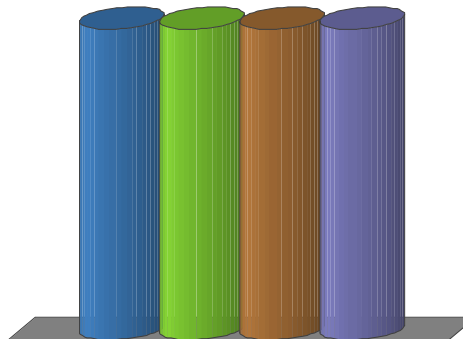
4



Oomycetes, e.g. downy mildews



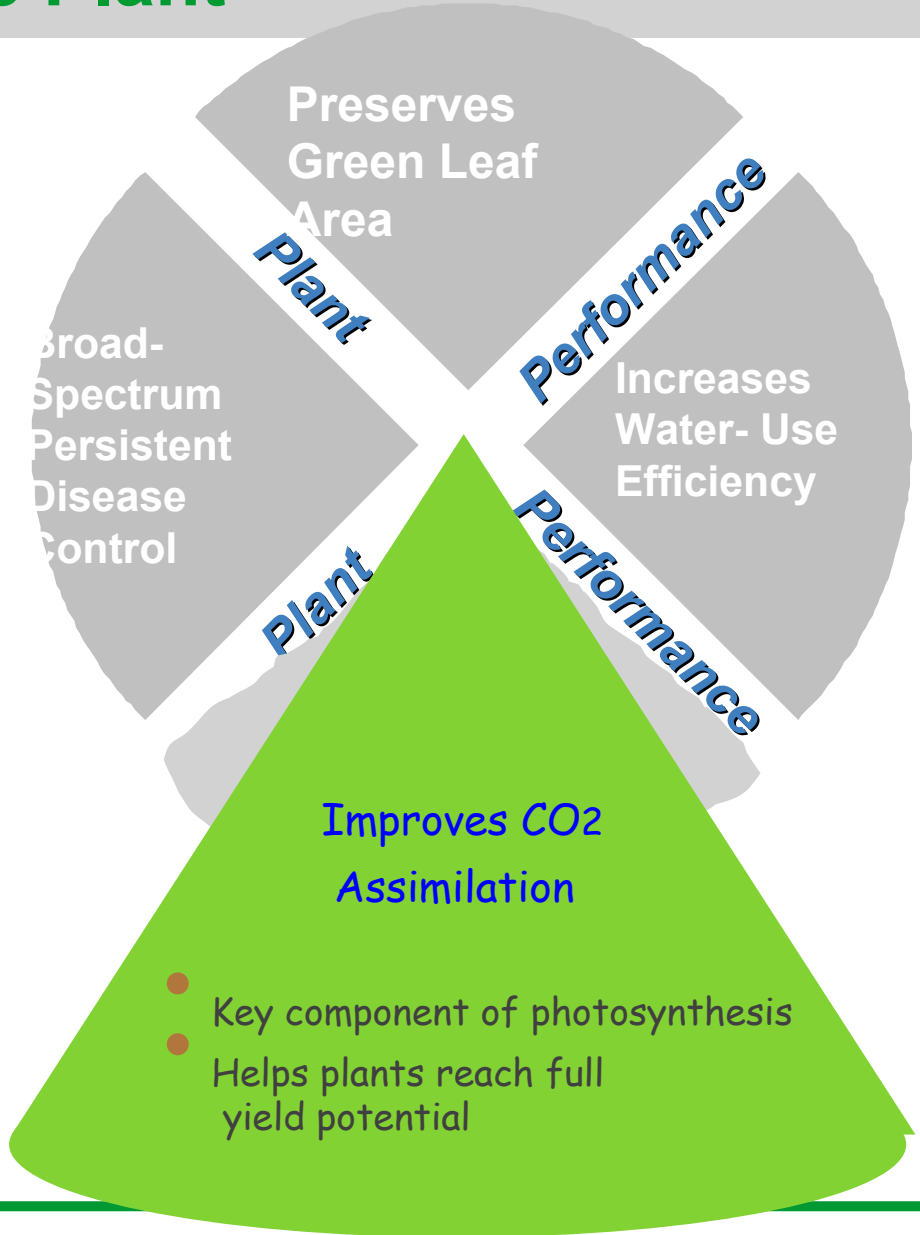
Triazoles
(like Tilt)



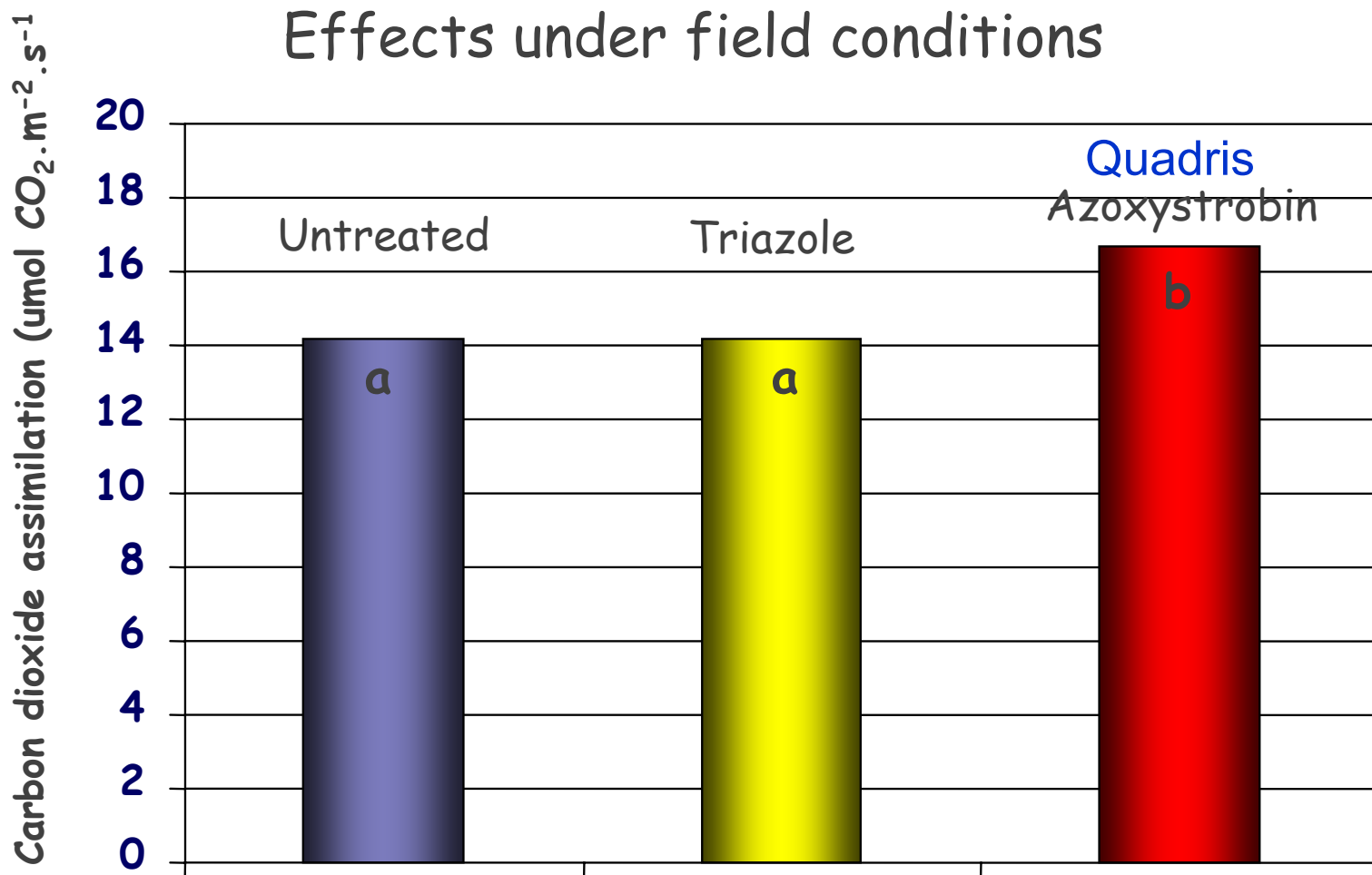
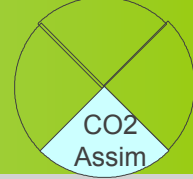
Strobilurins
(Like Quadris)

Unlike most other fungicides, Azoxystrobin controls fungi in all four classes of fungi. This means broad spectrum disease control.

Azoxystrobin Plant Performance: Effect on the Plant

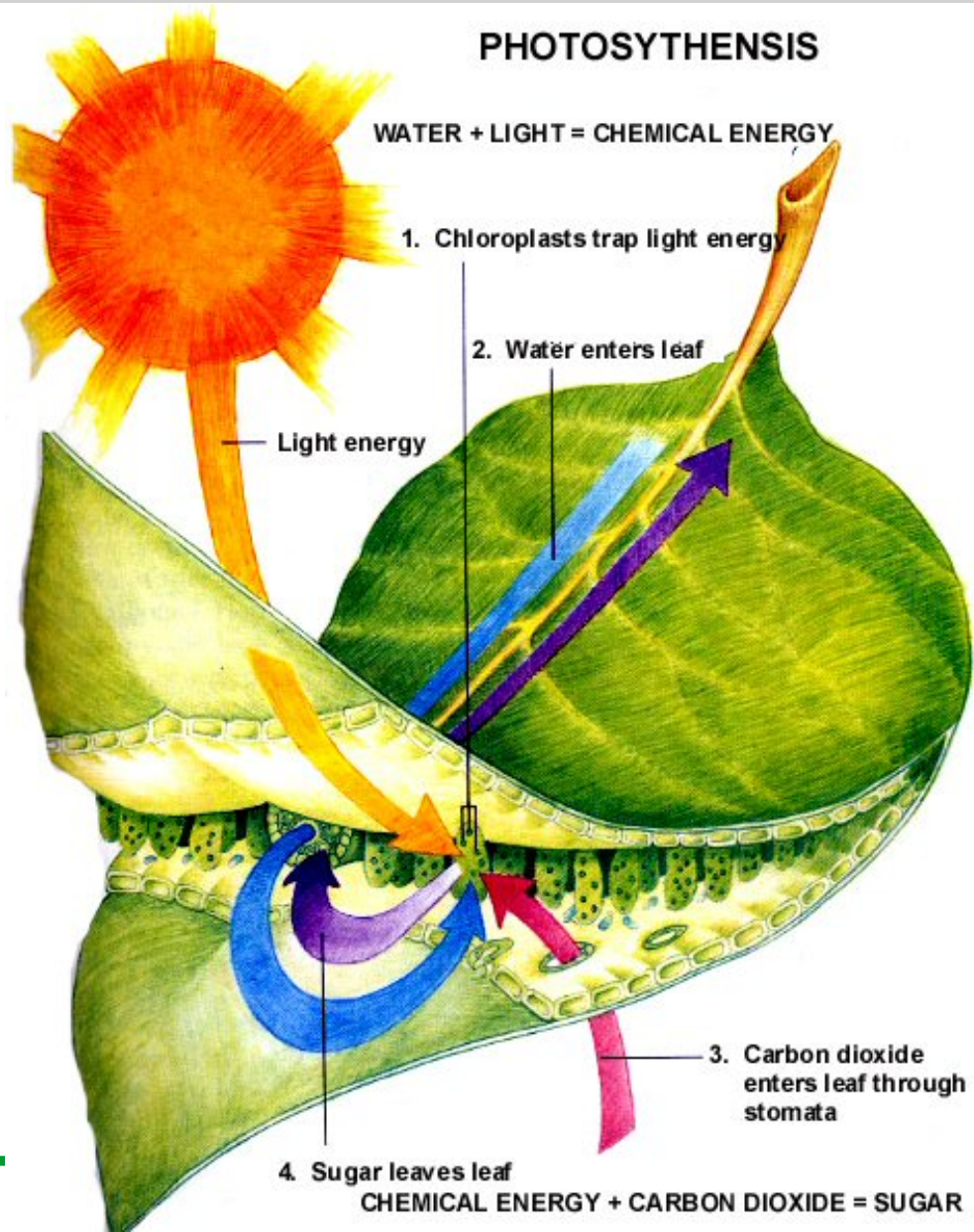
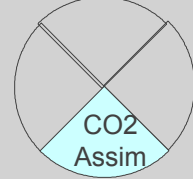


Azoxystrobin Increases CO₂ Assimilation

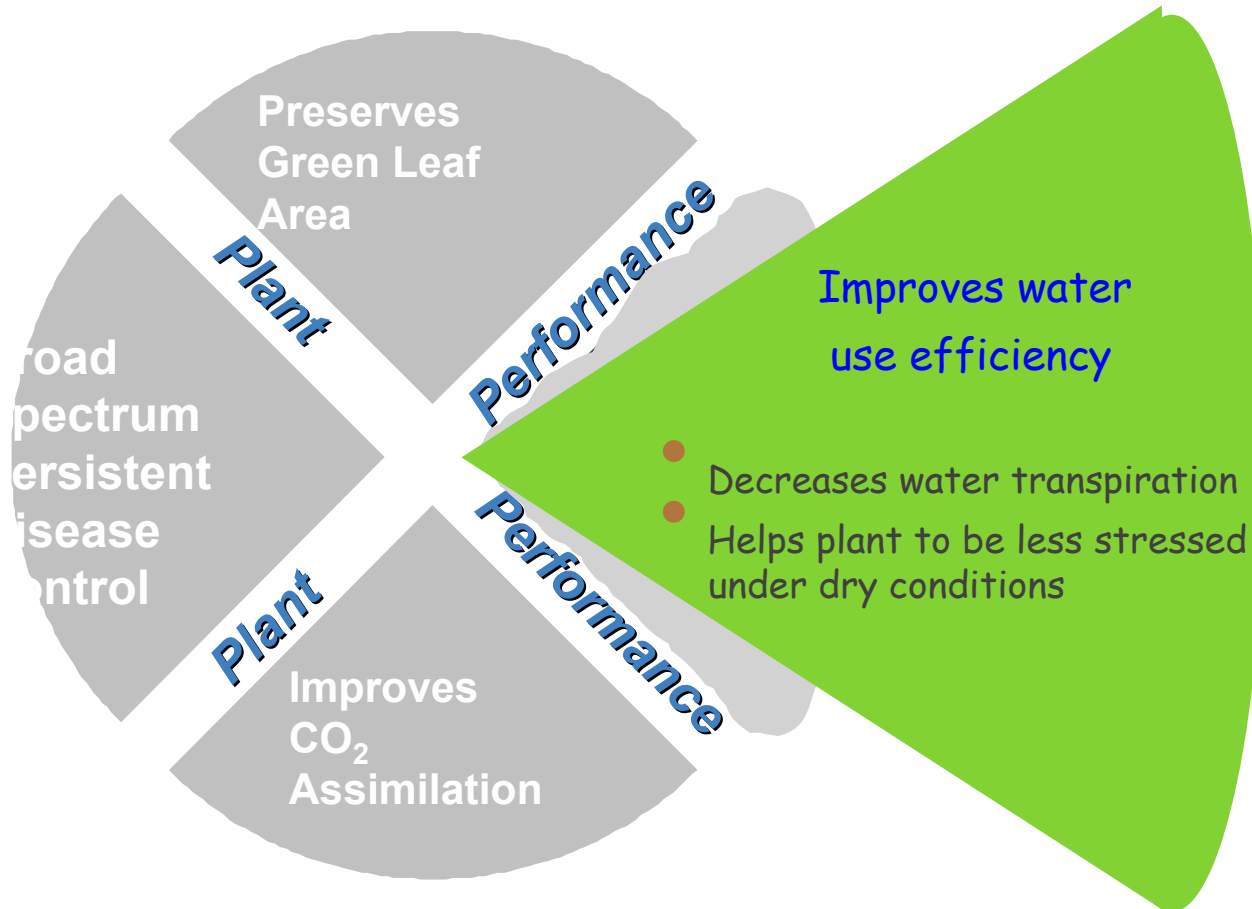


More efficient in photosynthesis – more energy goes into plant performance

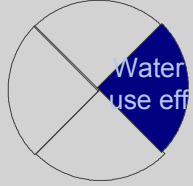
What that means to a plant



Azoxystrobin Plant Performance: Effects on the Plant

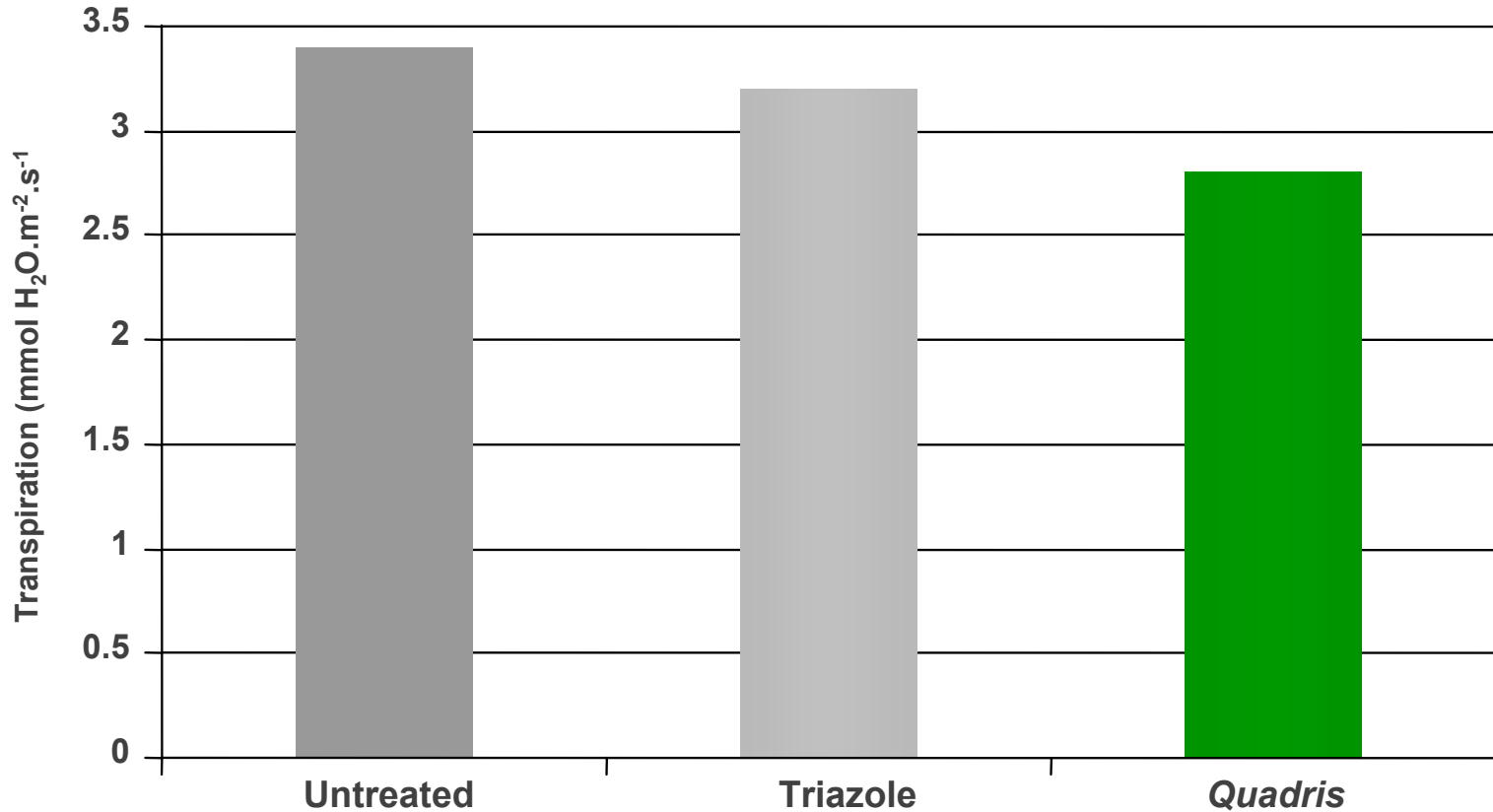


Water Use Efficiency: Transpiration Effects



Transpiration is decreased by Quadris. The benefit: The plants are better able to tolerate conditions of water stress.

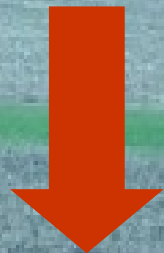
Effects under field conditions



Improved Stalk Quality Platteville, WI

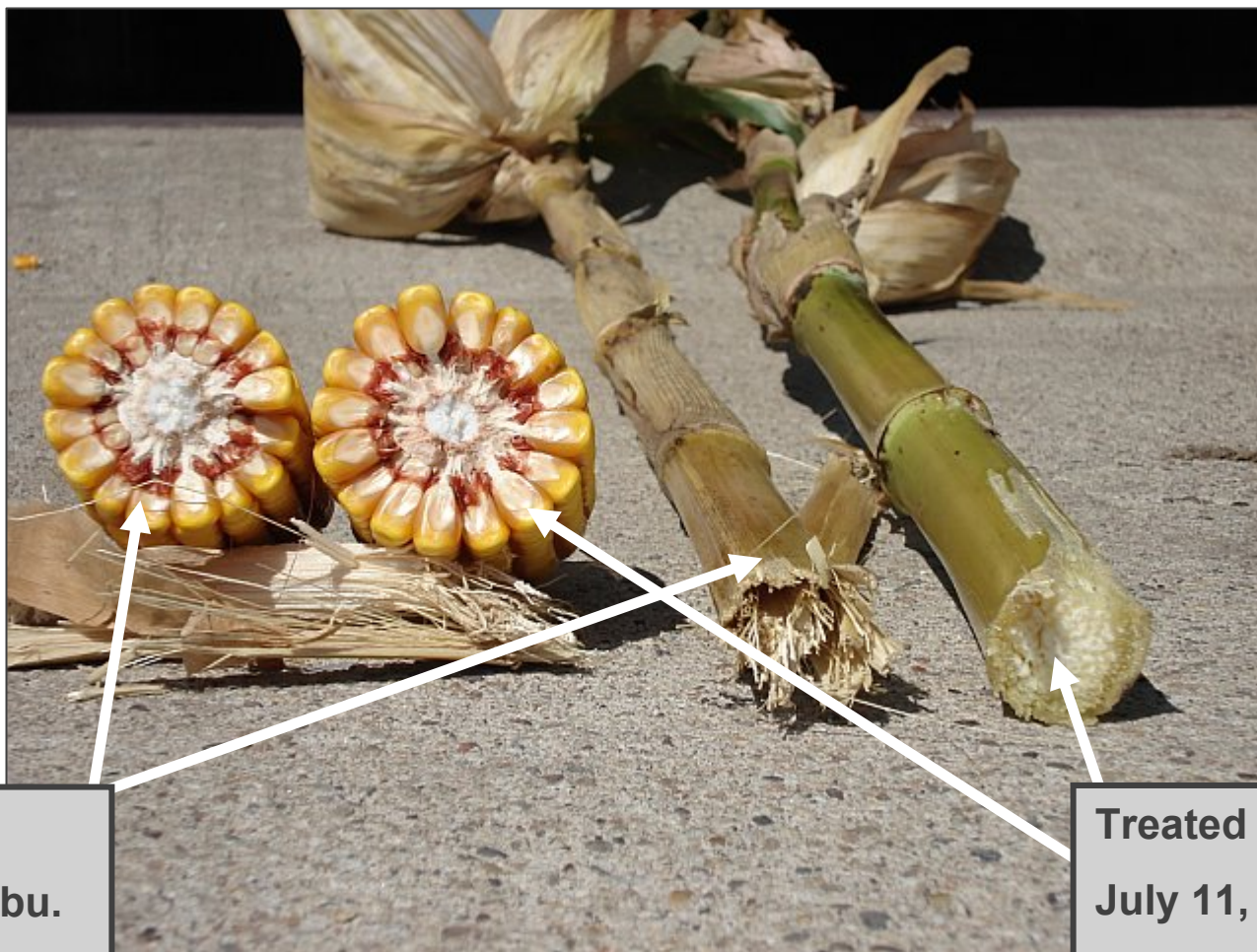


Untreated



Quilt Treated
14oz/acre

Improved Yield and Stalk Quality



Untreated

Yield 158 bu.

18% moisture

Treated with Quilt

July 11, 2007

Yield 180 bu.

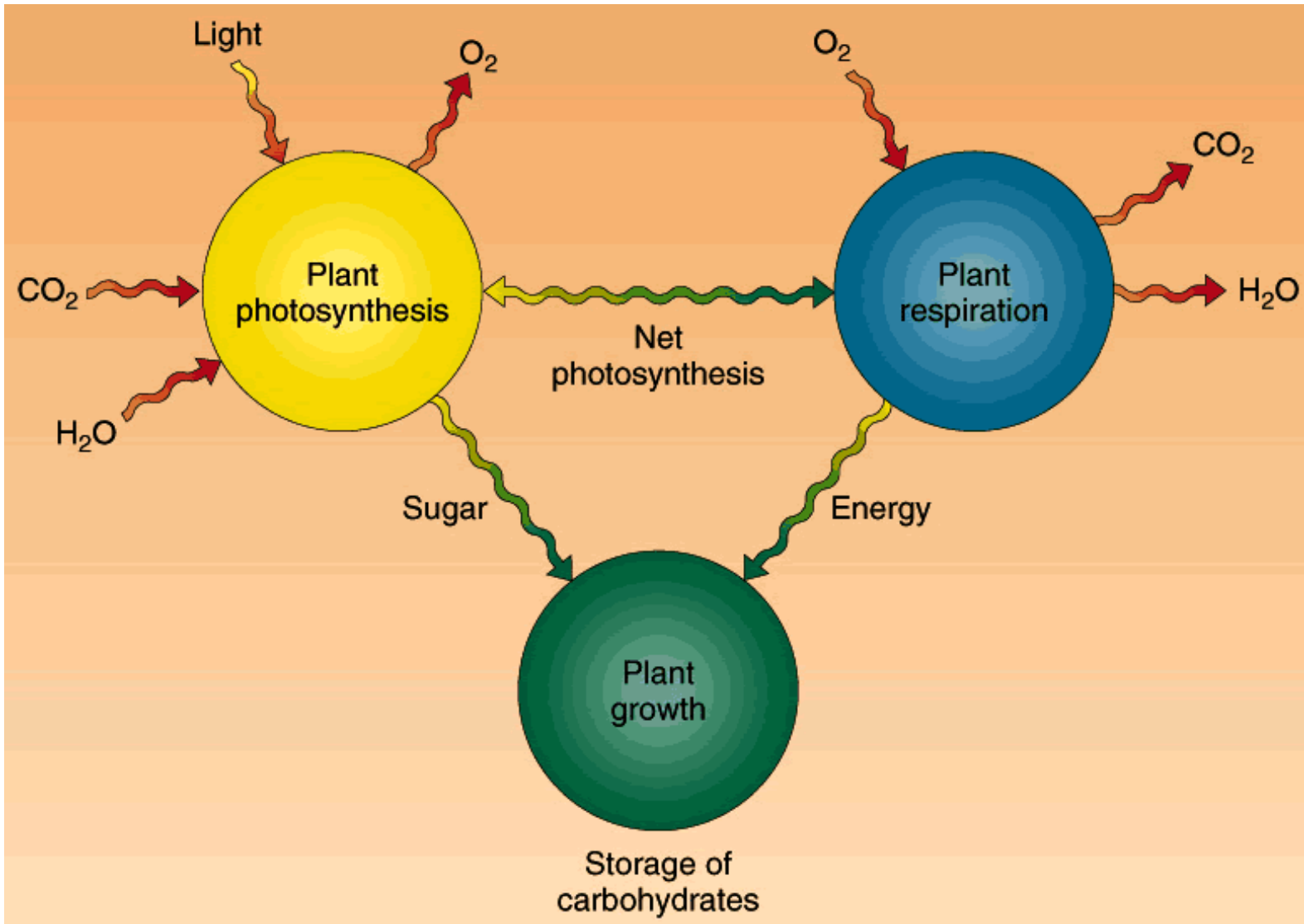
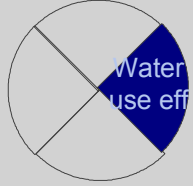
18.2% moisture

Dan Taylor Farm, Hannibal, MO.

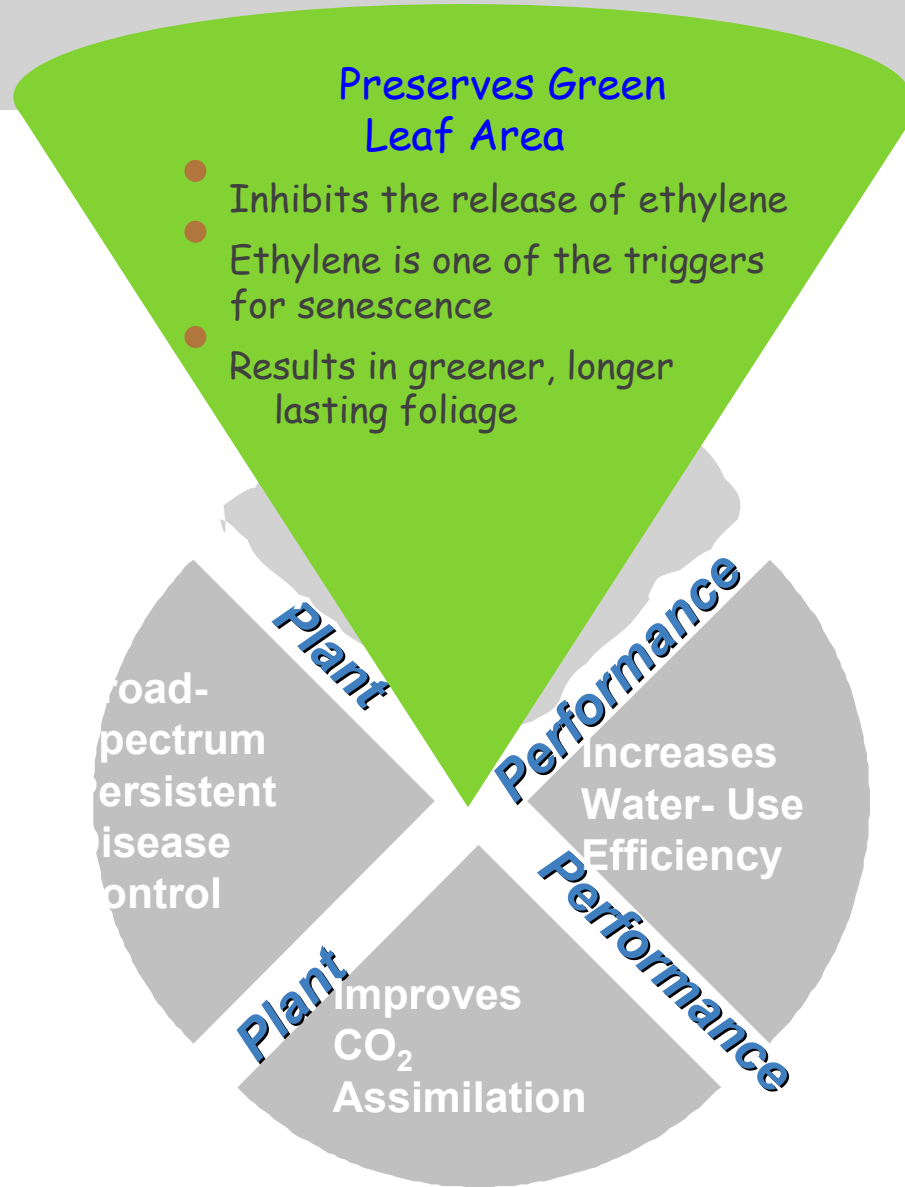
Hybrid: Lewis 7007

Picture taken September 19, 2007

Improved CO₂ assimilation & improved water use efficiency = more carbohydrates & better plant growth



Azoxystrobin Plant Performance: Effects on the Plant



Azoxystrobin Inhibits Ethylene Production



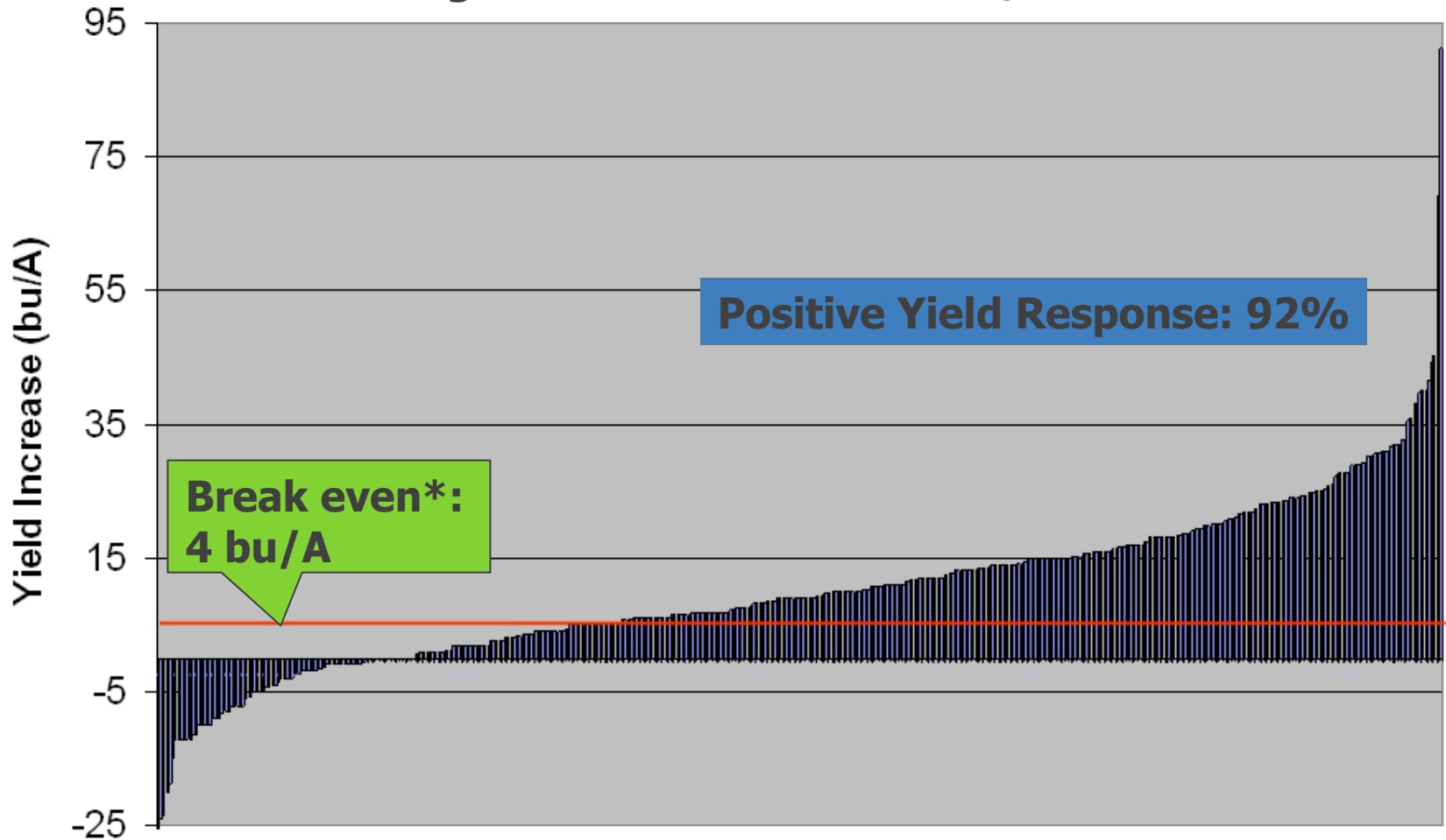
Azoxystrobin

Azoxystrobin is an ACC synthase inhibitor.

Therefore ethylene production is inhibited

2007 Plant Performance™ Yield Results in Corn

Average Yield Increase of 14 Bu/A

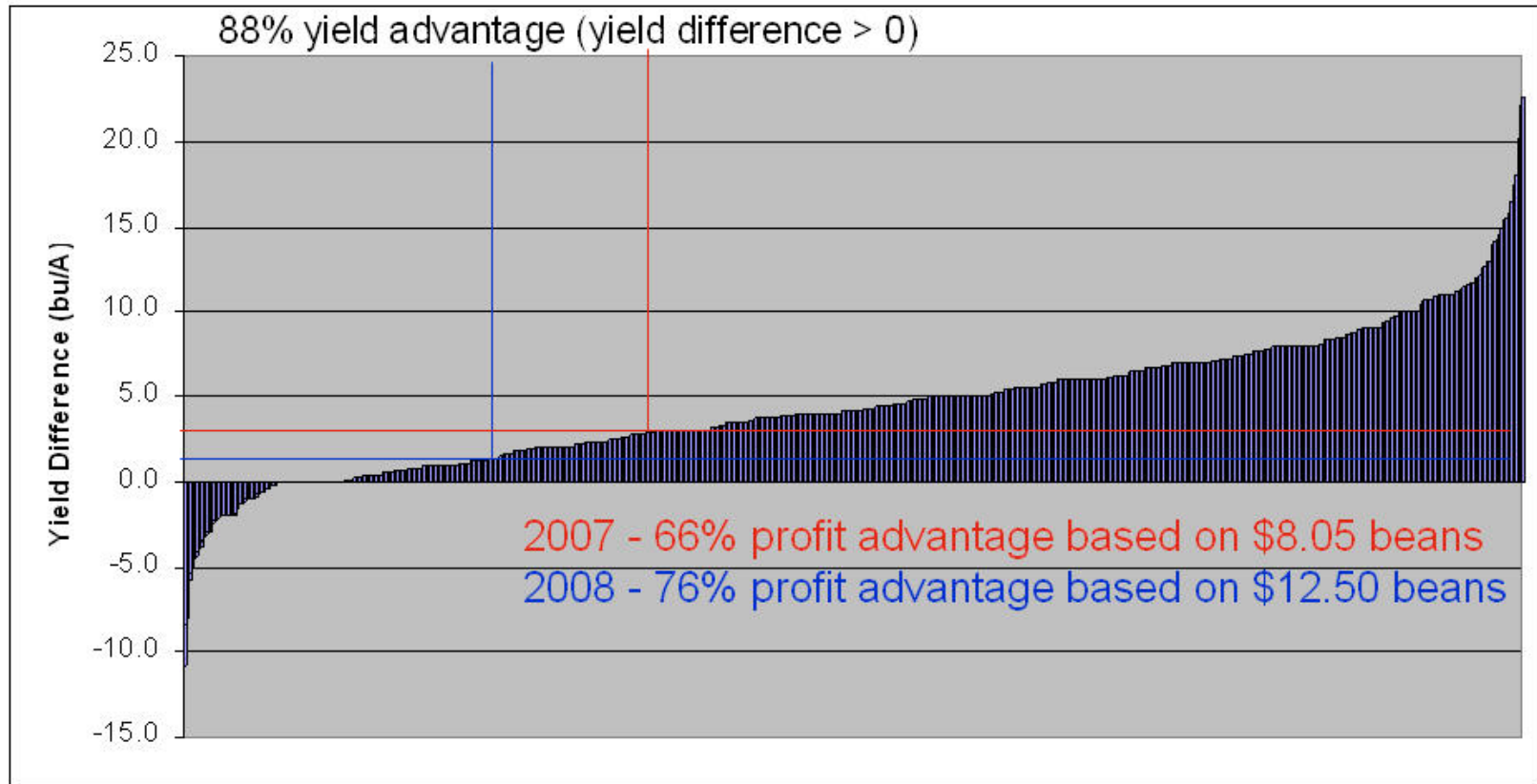


Source: 2007 field comparisons across the U.S.

*Break even with corn at \$5/bu minus cost of fungicide and application.

Plant Performance™ Yield Results in Soybeans

Soybean Yield Benefits from Quadris® Fungicide – Data 1999-2007



1277 trials; Average yield benefit = 5.5 bu/A

Treatment cost = \$20/A; Soybean priced at \$12.50/Bu (Chicago Board of Trade)

Break even yield = 1.6 Bu/A.

Quilt Enhances PLANT PERFORMANCE (Yield)

173.2 bu/ac

206.9 bu/ac

Untreated



Joe Pat Hughes Farm – Murray KY

August 16, 2006

Joe put 33.7 Bu/A profit in his pocket and wished he had sprayed the entire field

Quadris Plant Performance

57.4 bu./A

69.2 bu./A

240 feet block treated at R3
Quadris 6.2 oz/A
Warrior 2.8 oz/A

Location

South Charleston, OH

Yield benefit

11.7 bu/A

Warrior is a Restricted Use Pesticide.

Legal

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