



# Bayer CropScience



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# BCS Fungicide Portfolio for Asian Soybean Rust Control



# Asian Soybean Rust

## 'Keys to Manage the Disease'



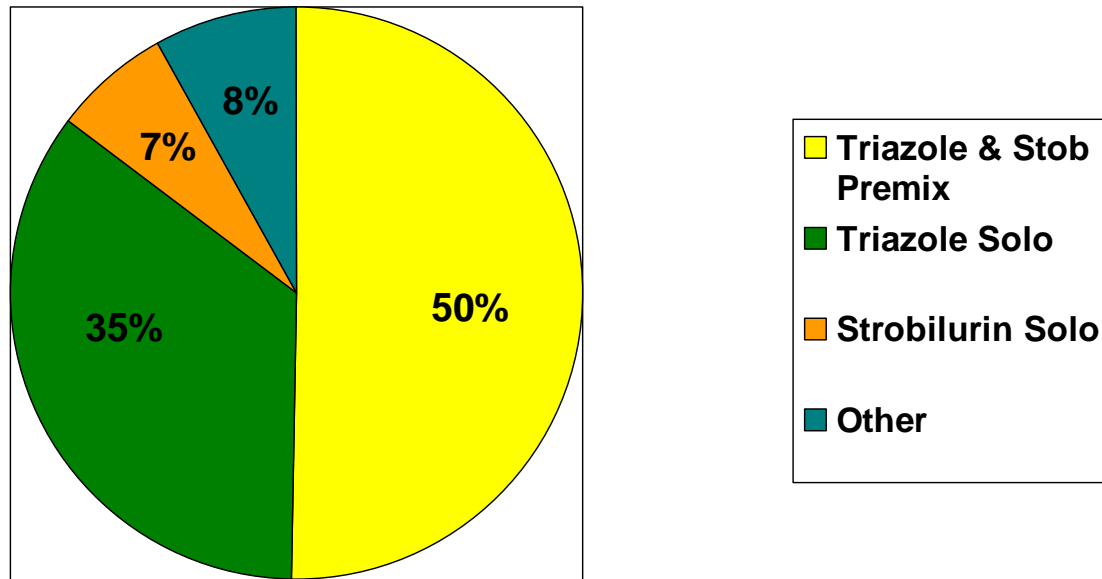
### • TAPS

- Timing of application
- Application quality
- Product selection
- Scouting/monitoring

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# Asian Soybean Rust: 'Brazilian ASR Market Share'

## 2004/05 Fungicide Market in Soybean



85% of the ASR soybean market in Brazil has a triazole component

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# Asian Soybean Rust:

‘BCS Fungicide Control Options Today’



**Folicur<sup>®</sup>**

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# Asian Soybean Rust:

‘Future BCS Fungicide Control Options’



**Folicur**<sup>®</sup>



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# Asian Soybean Rust:

## 'Recommended Application Timings'

Product	Core Use Rate (fl. oz/a)	Preventative	Post Infection* (Curative)
<b>Folicur</b>	<b>4</b>	<b>&lt;/= 2% incidence</b>	<b>&lt;/= 10% incidence</b>
<b>Absolute</b>	<b>5</b>	<b>&lt;/= 2% incidence</b>	<b>&lt;/= 10% incidence</b>
<b>Stratego</b>	<b>10</b>	<b>&lt;/= 2% incidence</b>	<b>Not recommended</b>

\* Folicur and Absolute may be applied at disease incidence  $\geq 10\%$ , but significant yield losses may have already occurred prior to application

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# Asian Soybean Rust:

## 'Folicur (Tebuconazole): Product Information'

- **Triazole chemistry**
- **Federal Sec. 3 registrations approved for use in peanuts, seed grass, certain stone fruits, grapes, etc for control of leaf spots, rusts, powdery mildew, brown rot, etc. (additional crop registrations pending)**
- **Sec. 18 Quarantine Emergency Exemption Registration granted in July, 2004 for use in soybeans to control Asian soybean rust**
- **Submitted for Sec. 3 Federal registration in 3<sup>rd</sup> Qtr., 2004**
- **Preventative and post-infection Asian soybean rust control**

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# Asian Soybean Rust:

## ‘Approved Folicur Sec.18 Label’

RECOMMENDED APPLICATIONS		
CROP	DISEASE	RATES OF Folicur 3.6F
Soybean	Rust <i>(Phakopsora pachyrhizi)</i>	3 to 4 fl. oz per acre*

**Use Directions:** Apply Folicur 3.6F as a broadcast foliar spray prior to or at first appearance of rust pustules on any leaves within the plant canopy. Repeat applications on a 10- to 21- day spray interval if conditions are favorable for continued disease development. Use of the higher rates and shorter intervals are recommended when disease pressure is severe. Use of adjuvants may enhance performance of Folicur 3.6F. If utilized, apply the lowest labeled rate of the adjuvant to enhance disease control. Folicur 3.6F should be applied in a minimum of 10 gallons of spray solution per acre by ground sprayer or in a minimum of 5 gallons per acre by aircraft spray equipment.

**Restrictions:** Applications may not be made within 30 days of harvest. Do not apply more than 8 fl. oz/a per use season. Do not enter treated fields for 12 hours after application. Do not feed soybean forage of hay to livestock. Do not apply more than 2 applications of tebuconazole-containing products to soybeans per season. Do not apply more than 0.225 pounds of the active ingredient tebuconazole per acre per year. A maximum of three total applications using approved section 18 products collectively are allowed under this soybean rust section 18.

\* Core use rate from BCS is 4 fl oz/a

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# Asian Soybean Rust:

## ‘Stratego: Product Information’

- Premix of a strobilurin (trifloxystrobin) & triazole
- Federal Sec. 3 registrations approved for use in corn, wheat, peanuts, pecans, and rice for control of leaf spots, rust, sheath blight, etc.
- Sec. 18 Emergency Exemption Registration granted in December, 2004 for control of Asian soybean rust
- Submitted for Sec. 3 Federal registration in 2<sup>nd</sup> Qtr., 2005
- Preventative Asian soybean rust control

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# Asian Soybean Rust:

STRATEGO

## 'Stratego Sec.18 Label'

RECOMMENDED APPLICATIONS		
CROP	DISEASE	RATES OF STRATEGO 250EC
Soybean	Rust ( <i>Phakopsora pachyrhizi</i> )	5.5 to 10 fl. oz per acre*

**Use Directions:** Begin broadcast, foliar applications of Stratego preventatively when conditions are favorable for disease development. Continue application programs as needed for disease control using a 10- to 21- day spray interval. Applications of Stratego may be made up to the R6 (full seed) soybean growth stage. Use of the higher rates and shorter intervals are recommended when disease pressure is severe. Do not apply Stratego in combination with organosilicate surfactants or crop injury may occur. Use of adjuvants may enhance performance of Stratego. If utilized, apply the lowest labeled rate of the adjuvant to enhance disease control. Stratego should be applied in a minimum of 10 gallons of spray solution per acre by ground sprayer or in a minimum of 5 gallons per acre by aircraft spray equipment. Chemical-resistant gloves must be worn for mixer/loaders. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

**Restrictions:** Do not make more than 2 applications of propiconazole-containing products to soybeans per season. Do not make more than 2 applications of trifloxystrobin-containing products to soybeans per season. Do not apply more than 0.339 pounds of the active ingredient propiconazole to soybeans per acre per season. Do not make more than 0.162 pounds of the active ingredient trifloxystrobin to soybeans per acre per season. Do not enter treated field for 24 hours after application. A maximum of three total applications using approved section 18 products collectively are allowed under this soybean rust section 18.

\* Core use rate from BCS is 10 fl oz/a

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# Asian Soybean Rust:

## ‘Absolute: Product Information’

- **New premix of trifloxystrobin (strobilurin) & tebuconazole (triazole)**
- **500 SC Formulation**
- **Petition for Sec. 18 Quarantine Emergency Exemption Registration is being prepared for submission to EPA**
- **Preventative and post-infection activity on Asian soybean rust**
- **Also active on many late season diseases**
- **First sales expected in 2006**

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# Asian Soybean Rust:



## ‘Proposed Absolute Sec.18 Label’

RECOMMENDED APPLICATIONS		
CROP	DISEASE	RATES OF Folicur 3.6F
Soybean	Rust ( <i>Phakopsora pachyrhizi</i> )	5-6 fl. oz per acre*

**Use Directions:** Apply Absolute 500 SC as a broadcast foliar spray prior to or at first appearance of rust pustules on any leaves within the plant canopy. Repeat applications on a 10- to 21- day spray interval if conditions are favorable for continued disease development. Use of the higher rates and shorter intervals are recommended when disease pressure is severe. Use of nonionic and spreader sticker adjuvants may enhance performance of Absolute 500 SC. If applied, apply the lowest labeled rate of the adjuvant to enhance disease control. Absolute 500 SC should be applied in a minimum of 15 gallons of spray solution per acre by ground sprayer or in a minimum of 5 gallons per acre by aircraft spray equipment.

**Restrictions:** Applications may not be made within 30 days of harvest. Do not enter treated fields for 12 hours after application. Do not feed soybean forage of hay to livestock. Do not apply more than 2 applications of tebuconazole-containing products to soybeans per season. Do not apply more than 0.225 pounds of the active ingredient tebuconazole per acre per year. A maximum of three total applications using approved section 18 products collectively are allowed under this soybean rust section 18.

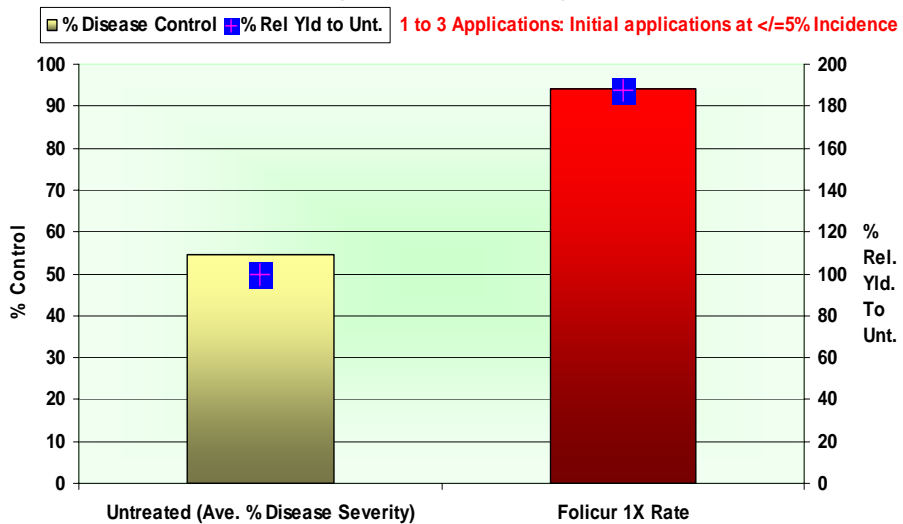
\* Core use rate from BCS is 5 fl oz/a

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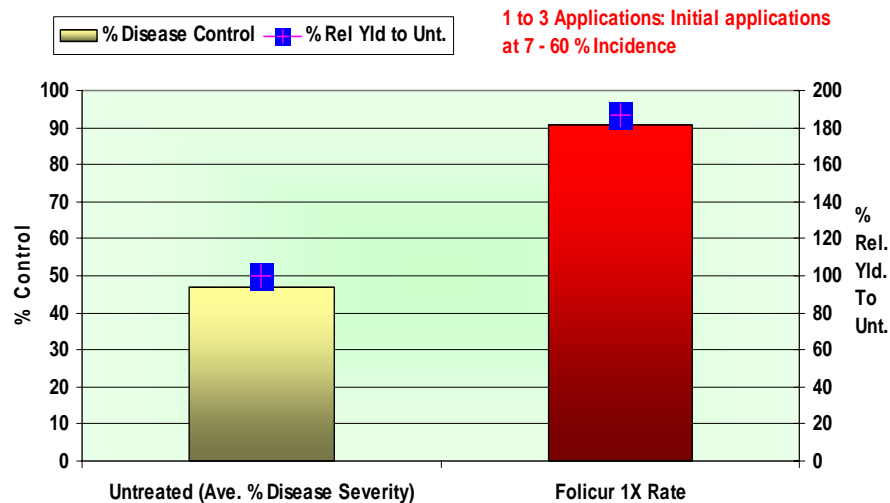


# Folicur®

Folicur Performance On Asian Soybean Rust in Brazil in 2004  
'Preventative Application'  
(Ave. of Sixteen Trials)



Folicur Performance On Asian Soybean Rust in Brazil in 2004  
Post Infection 'Curative' Application  
(Ave. of 15 Field Trials)

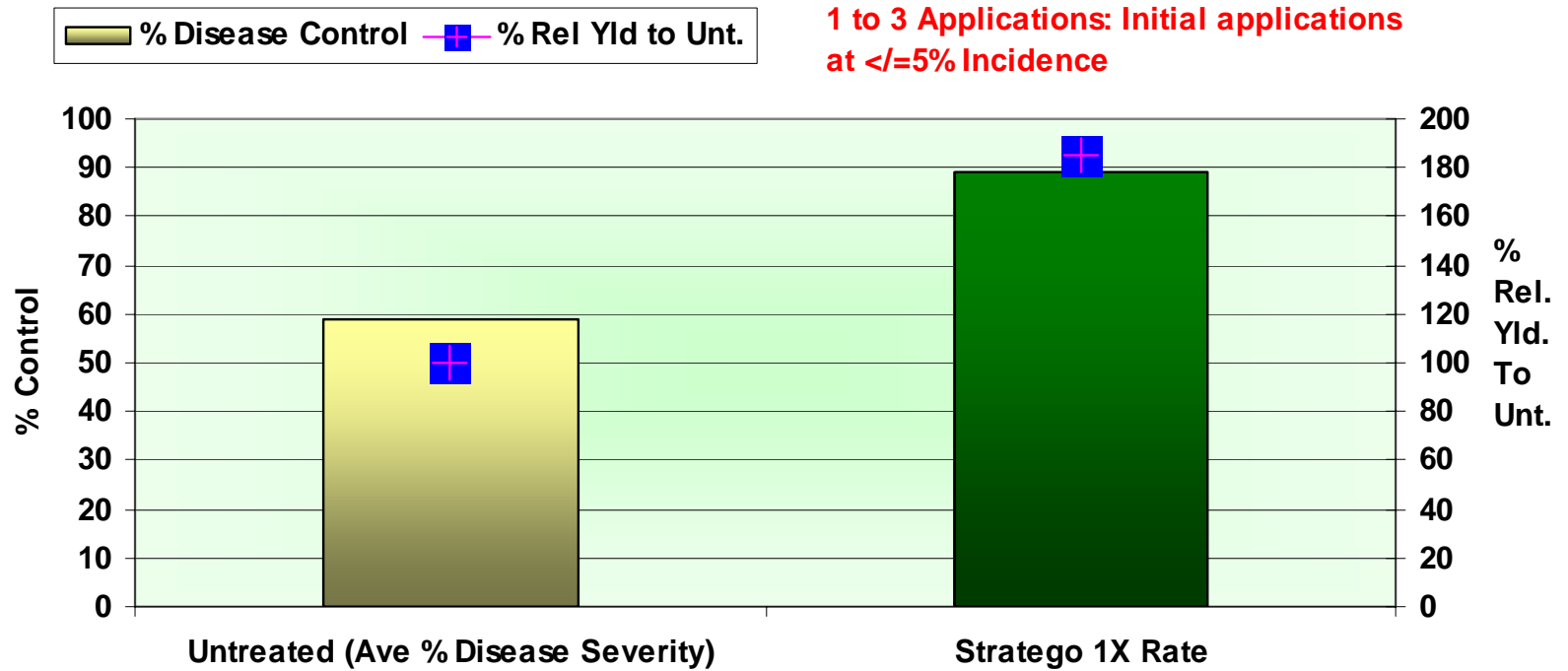


# 2004

Across 31 'Preventative' and Post Infection 'Curative' Brazil field trials in 2004, Folicur averaged over 90% Asian soybean rust control and provided an average yield of 187% over the untreated control

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**Stratego Performance On Asian Soybean Rust in Brazil in 2004  
'Preventative Application'  
(Ave of 23 Field Trials)**



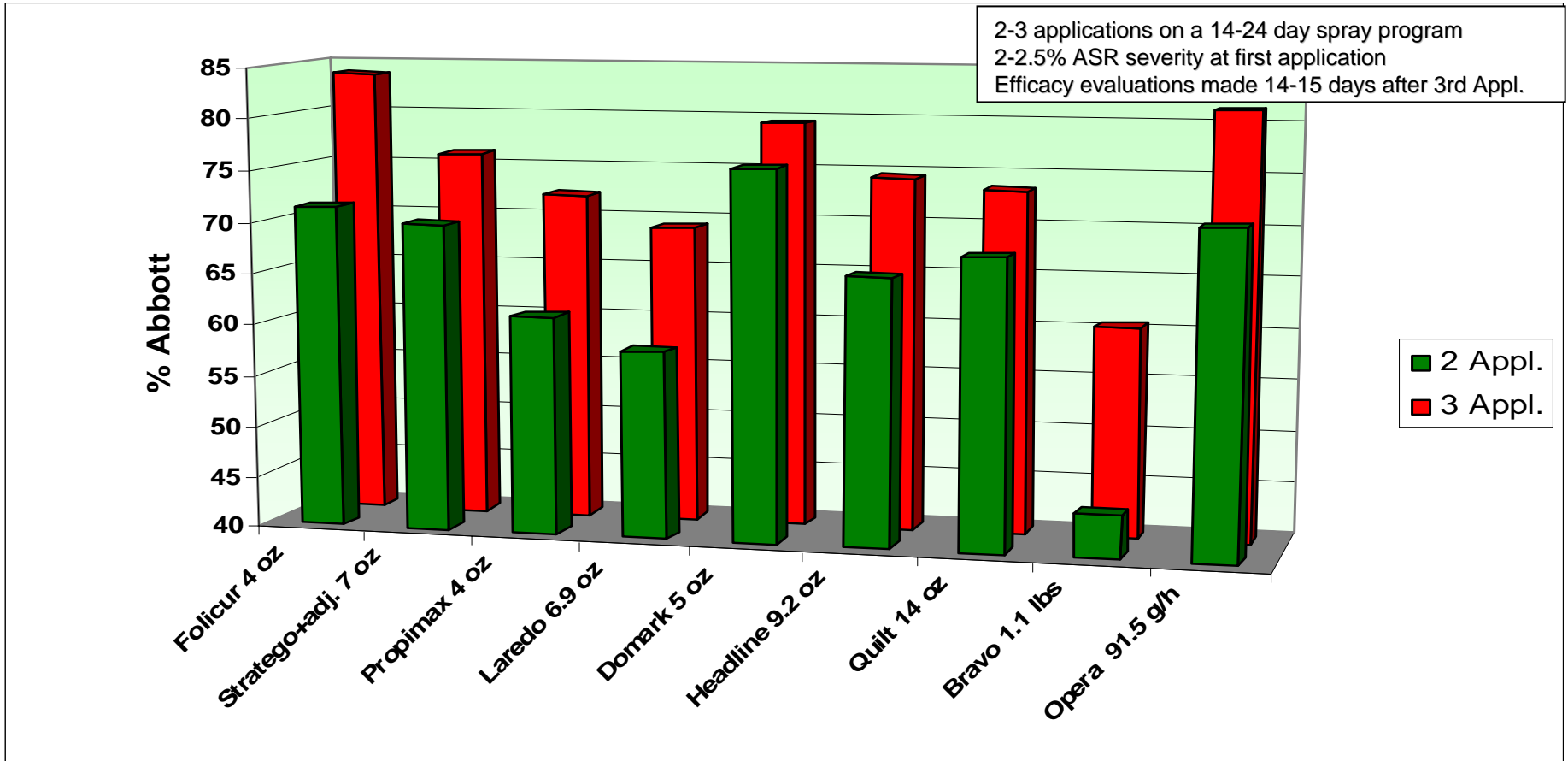
**Stratego provided an average of 89% rust control and yields which were 185% of the untreated control**

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# ASR, USDA/Industry Protocol, Brazil, 2005

## Summary of 2 BCS Trials



The untreated checks were at 80.7% and 78.8% ASR severity at the time of final disease evaluation

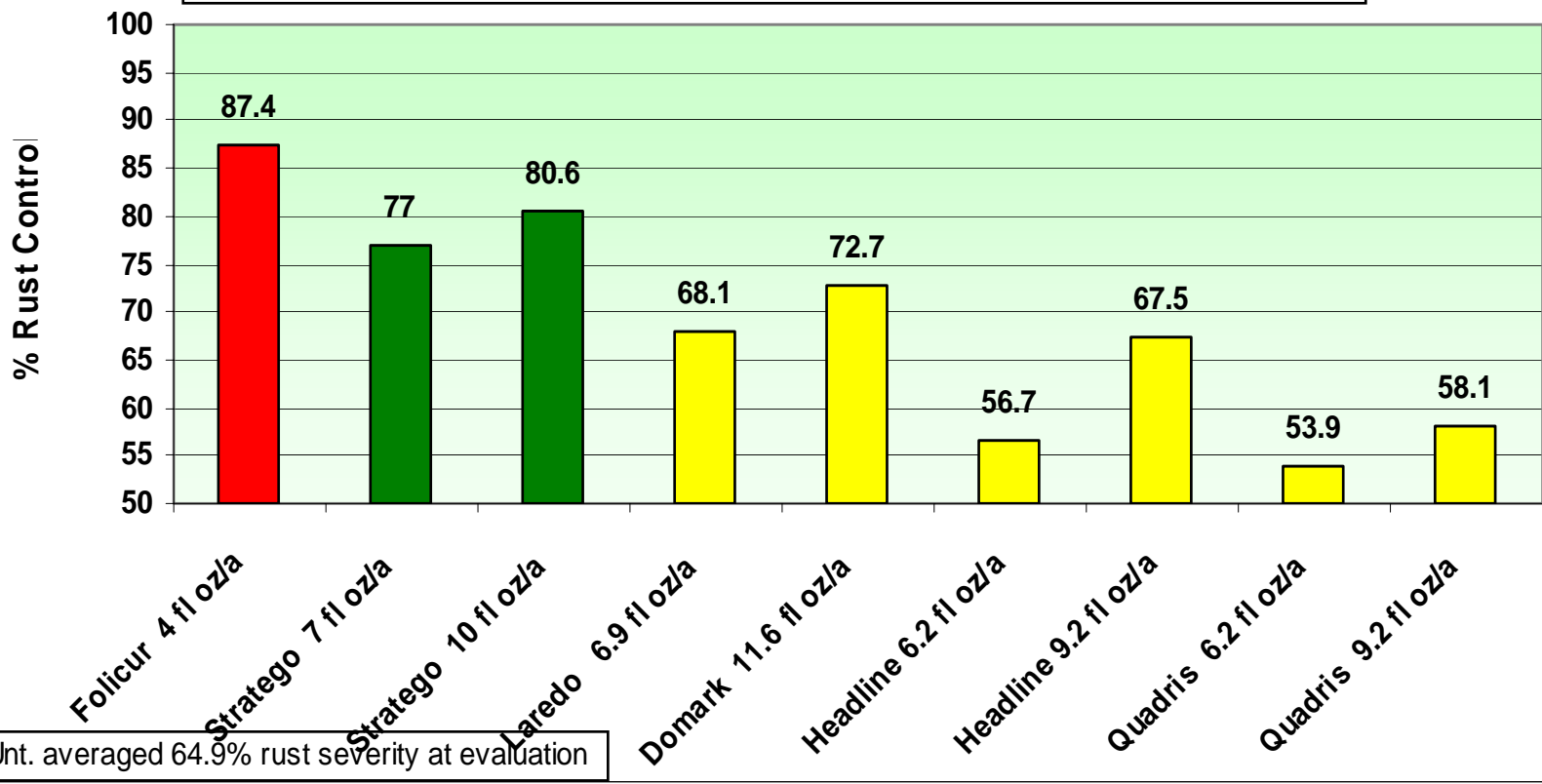
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Asian Soybean Rust Control

Brazil 2005 (Average of Three Replicated Trial Locations)

Asian soybean rust severity ranged from 1 to 2.5% at initial application  
 Trials received from 2-4 fungicide applications depending on disease pressure



\* Unt. averaged 64.9% rust severity at evaluation

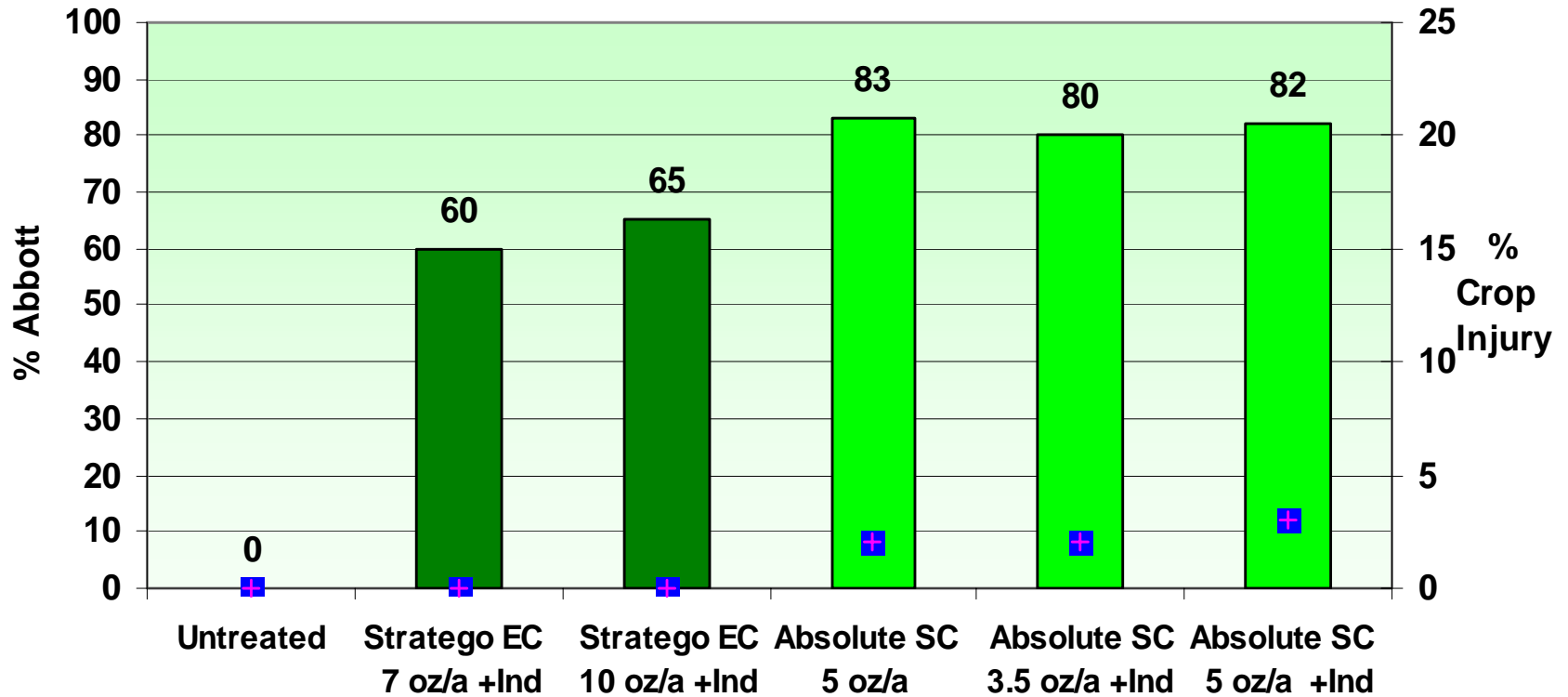
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## Asian Soybean Rust : Absolute Brazil, 2005

% ASR Control   
  % CI

0-2% ASR severity at initial application  
2-4 spray applications  
Evaluated 21-28 DALA



Untreated Plot Averaged 71.7% ASR Severity

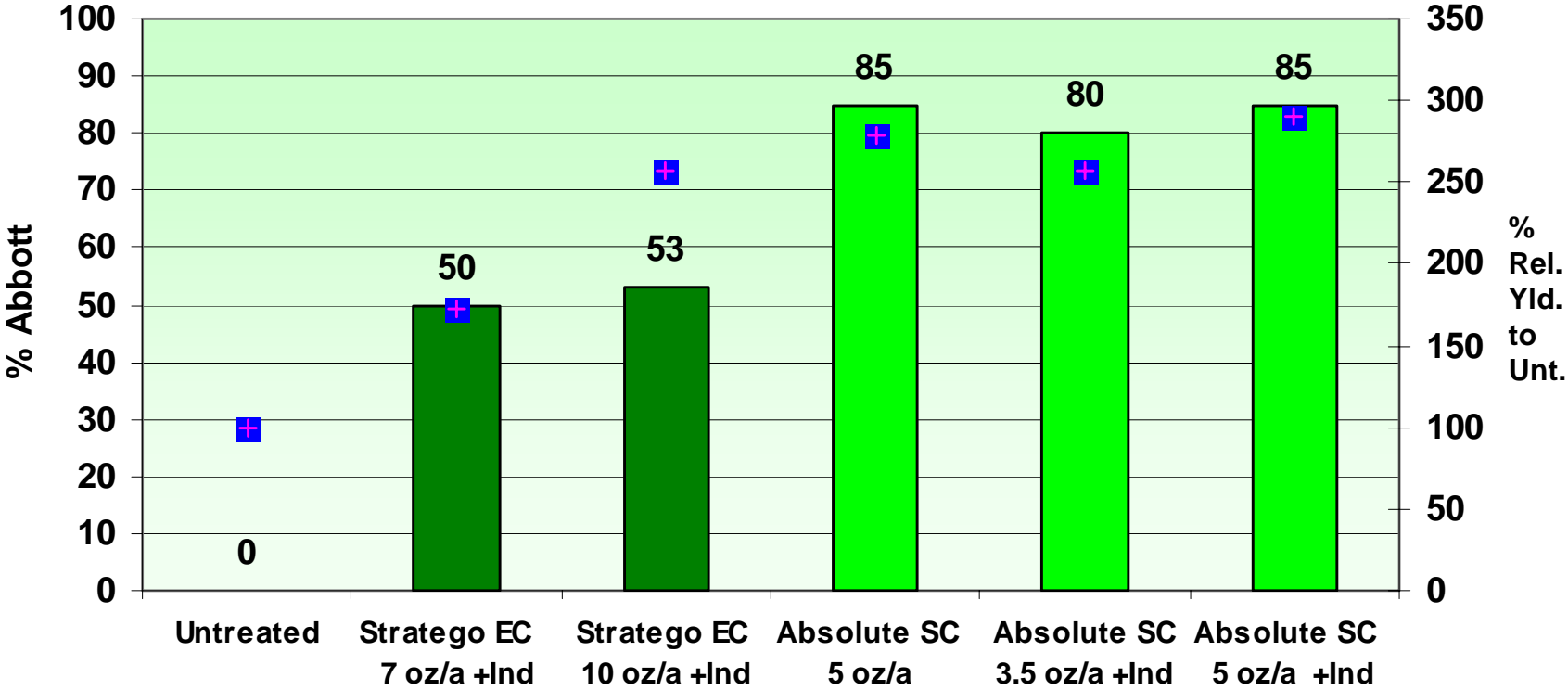
Average of 4 replicated field trials

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# Asian Soybean Rust: Absolute Brazil, 2005

■ % ASR Control ◆ Rel Yld to Unt.

First application was made at 2% ASR severity  
4 spray applications on a 14 day schedule



Untreated plot had 100% ASR severity

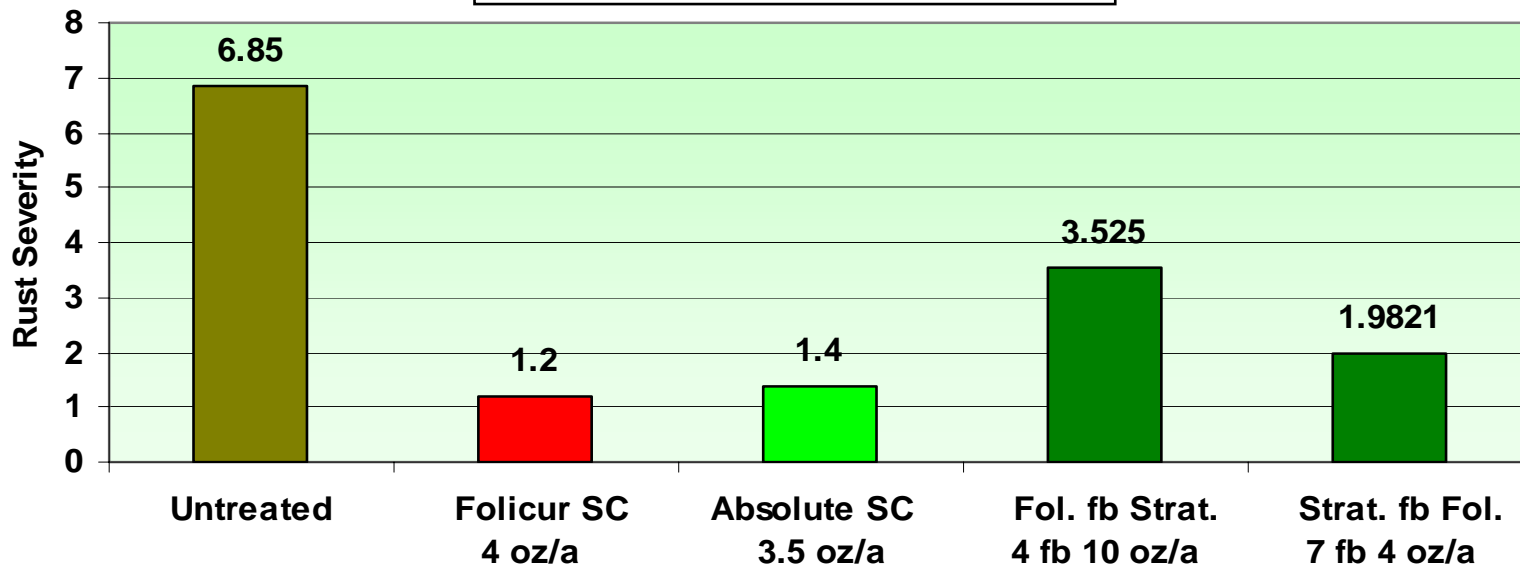
Trial Location: Primavera Do Leste, MT, BRA

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**Asian Soybean Rust Control, Quincy, FL, 2005**  
**Preliminary Data - Univ. of FL, IFAS**

0 % ASR severity at initial application  
2 spray applications (14 day interval)  
Evaluations recorded 54 DALA



Leaf Severity. Rating Scale: 0= 0%, 1= < 2.5%, 2= 2.5--5%, 3= 5-10%, 4= 10-15%, 5= 15-25% 6= 25-35%, 7= 35-67.5% 8= >67.5%

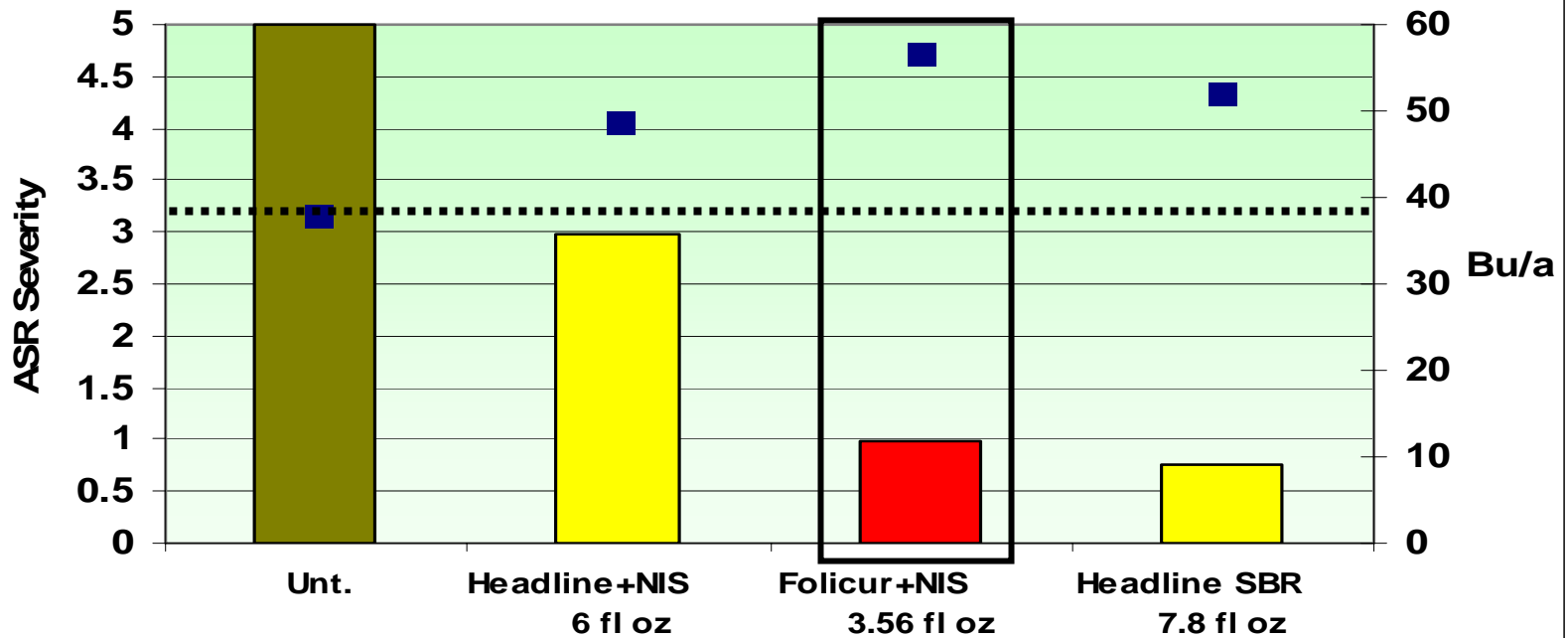
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## 2005 Asian Soybean Rust Control, Univ. of GA, Attapulgus Site (Kemerait, Sconyers, Jost)

■ ASR Severity ■ Yield (bu/a)

Variety: DP 7870 RR  
Appl: R1, R3 (Headline only R1)



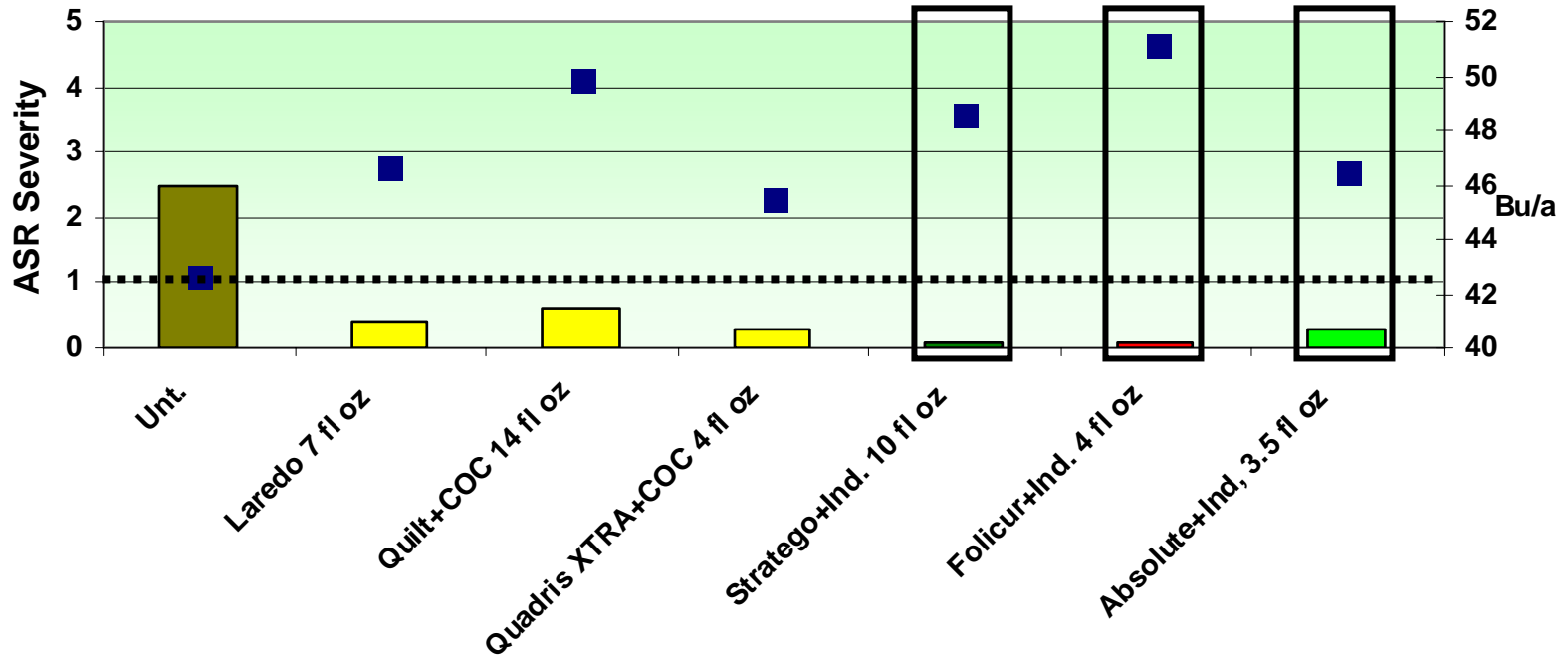
Leaf Severity. Rating Scale: 0= 0%, 1= < 5%, 2= 5-15%, 3= 15-35%, 4= 35-67.5%, 5= >67.5%

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2005 Asian Soybean Rust Control, Univ. of GA,  
Lang Site (Kemerait)

ASR Severity ■ Yield (bu/a)

Variety: DP 7870 RR  
2 Appl: R1, 23 days after R1



Leaf Severity. Rating Scale: 0= 0%, 1= < 5%, 2= 5-15%, 3= 15-35%, 4= 35-67.5%, 5= >67.5%

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# Asian Soybean Rust Fungicides: 'BCS Spray Appl. Recommendations'

- For optimum control, apply fungicides prior to or at first sign of infection
- Choose the appropriate fungicide based on disease infection
- Use moderate to high spray gallonage
  - Ground: 10 GPA minimum (prefer 15-25 GPA -increase gallon as canopy size increases)
  - Aerial: 5 GPA minimum
- Use medium droplet size (~250 mu)
- Use medium spray pressure (35-60 psi)
- Use fungicide application recommendations if tank-mixing with insecticides/herbicides

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# Adjuvant Recommendations

Adjuvants may be used with Bayer Crop Science labeled fungicides for Asian soybean rust control in soybeans. Under certain environmental conditions, adjuvants may enhance the potential for sporadic and cosmetic crop injury symptoms to occur. If adjuvants are used, BCS recommends use of NIS and spreader/sticker-type adjuvants.

Application Timing	ASR Present	Plant Growing Conditions	Adjuvant Recommended*		
			Folicur	Absolute	Stratego
Preventative	No	Normal	NN	NN	Yes
Preventative	No	Hot, Dry (stressed)	No	No	Yes
E. Post-infection	Yes	Normal	Yes	Yes	NA
E. Post-infection	Yes	Hot, Dry (stressed)	No	No	NA

•NN- Not necessary but not prohibited

•NA- Stratego is not registered for post-infection control of Asian soybean rust

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# Asian Soybean Rust: 'Summary'



- **BCS has a strong portfolio of products for the control of Asian soybean rust (ASR) today**
  - **Folicur:** Preventative and post-infection control
  - **Stratego:** Preventative control
- **BCS is expanding it's portfolio of ASR control products**
  - **Absolute:** Preventative and post infection control

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A wide-angle photograph of a large agricultural field. The field is filled with young, green plants, likely soybeans, arranged in perfectly straight, parallel rows that recede into the distance. The soil between the rows is dark and appears to be recently tilled. The horizon is flat and extends across the entire width of the image. In the far distance, a single, small tree stands on the left side, and a dark line of trees is visible on the right. The sky is filled with soft, grey clouds, suggesting an overcast day. The overall color palette is dominated by the vibrant green of the plants and the muted tones of the sky and soil.

**Questions?**