EXTENDING KNOWLEDGE ›› CHANGING LIVES

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Plant Path Models and Thresholds (?)

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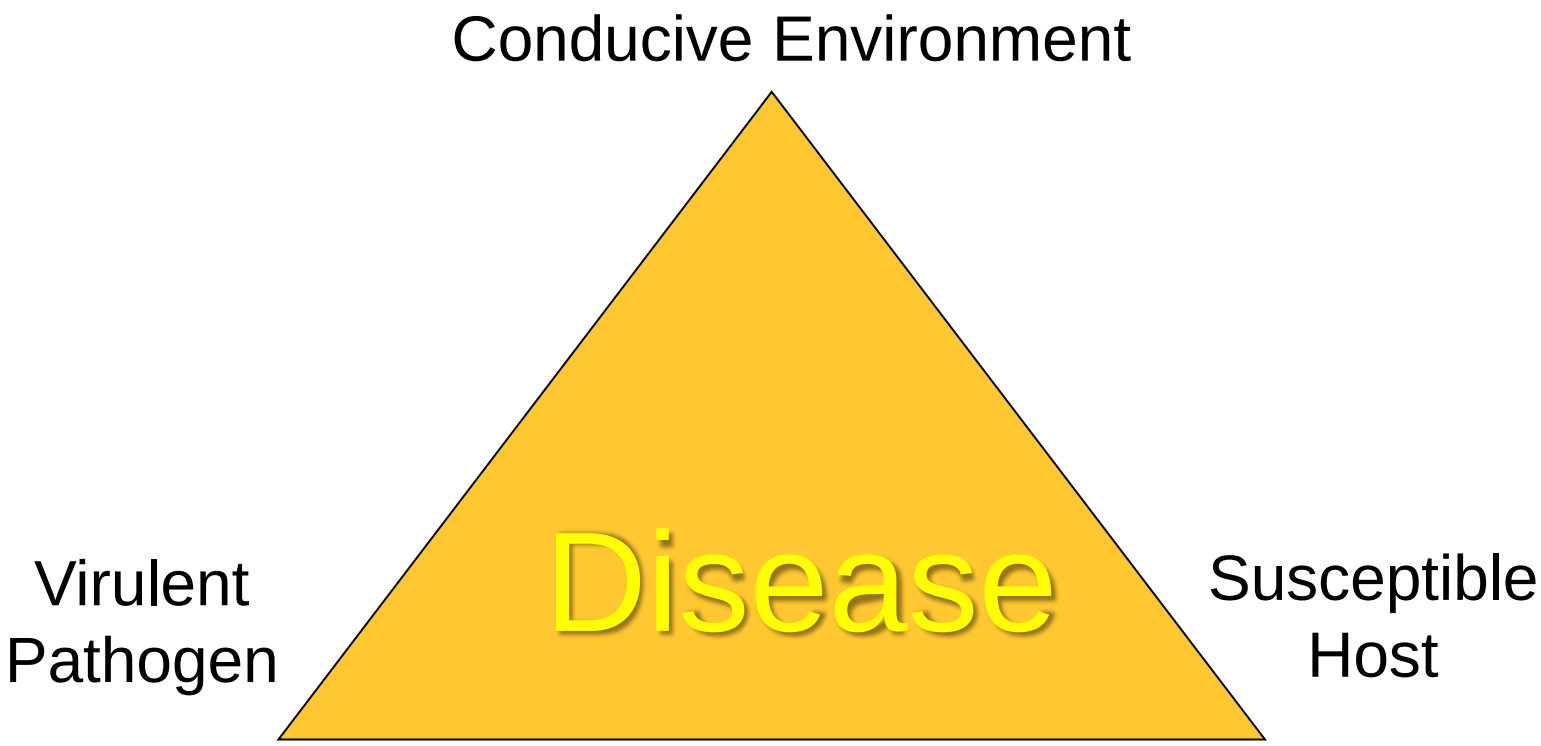
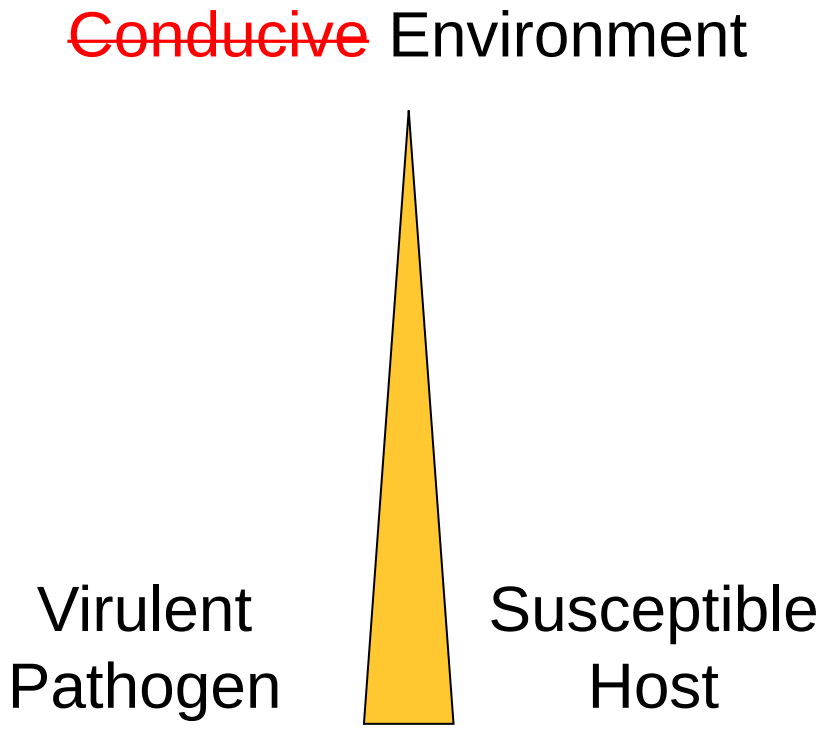
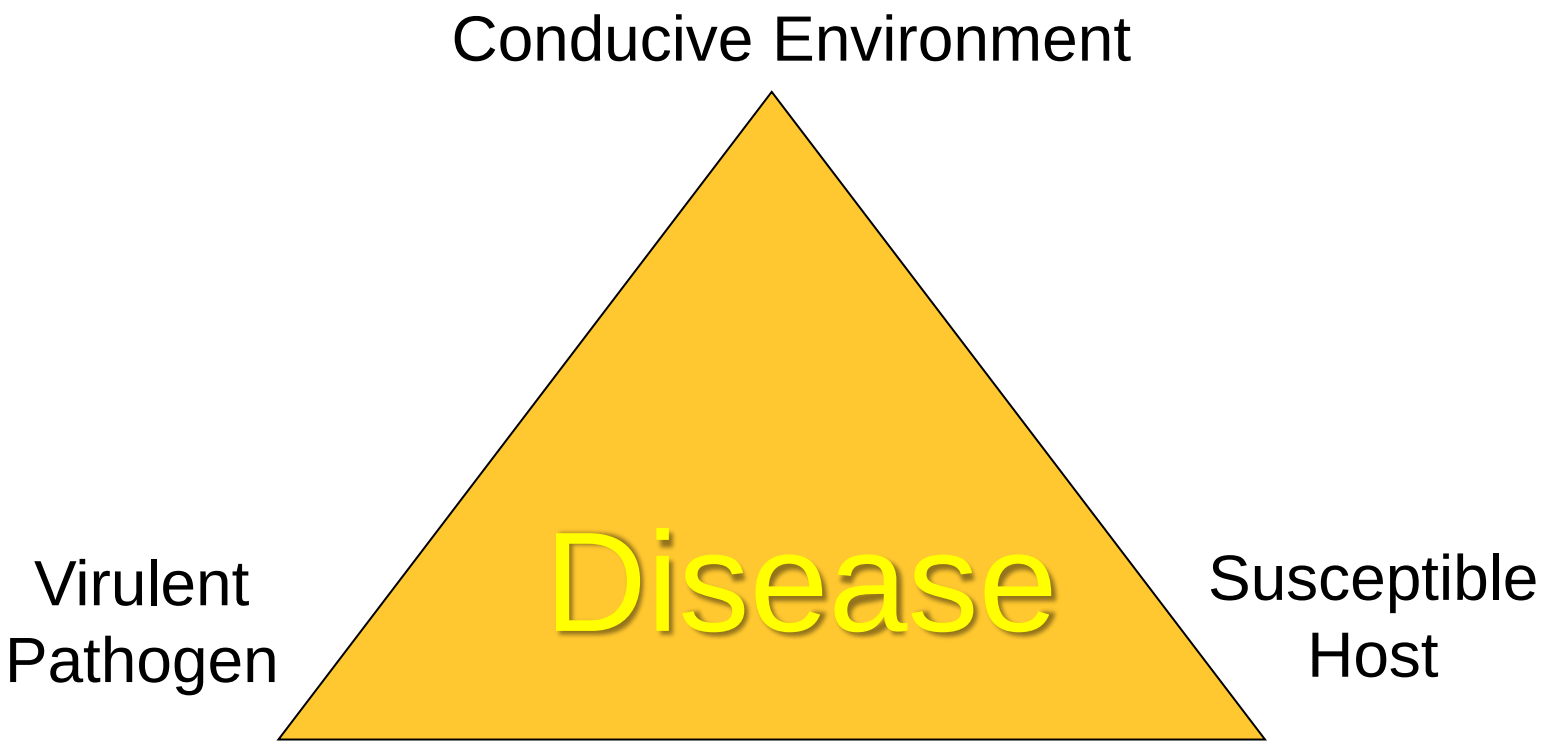
Disease Triangle





Disease Triangle



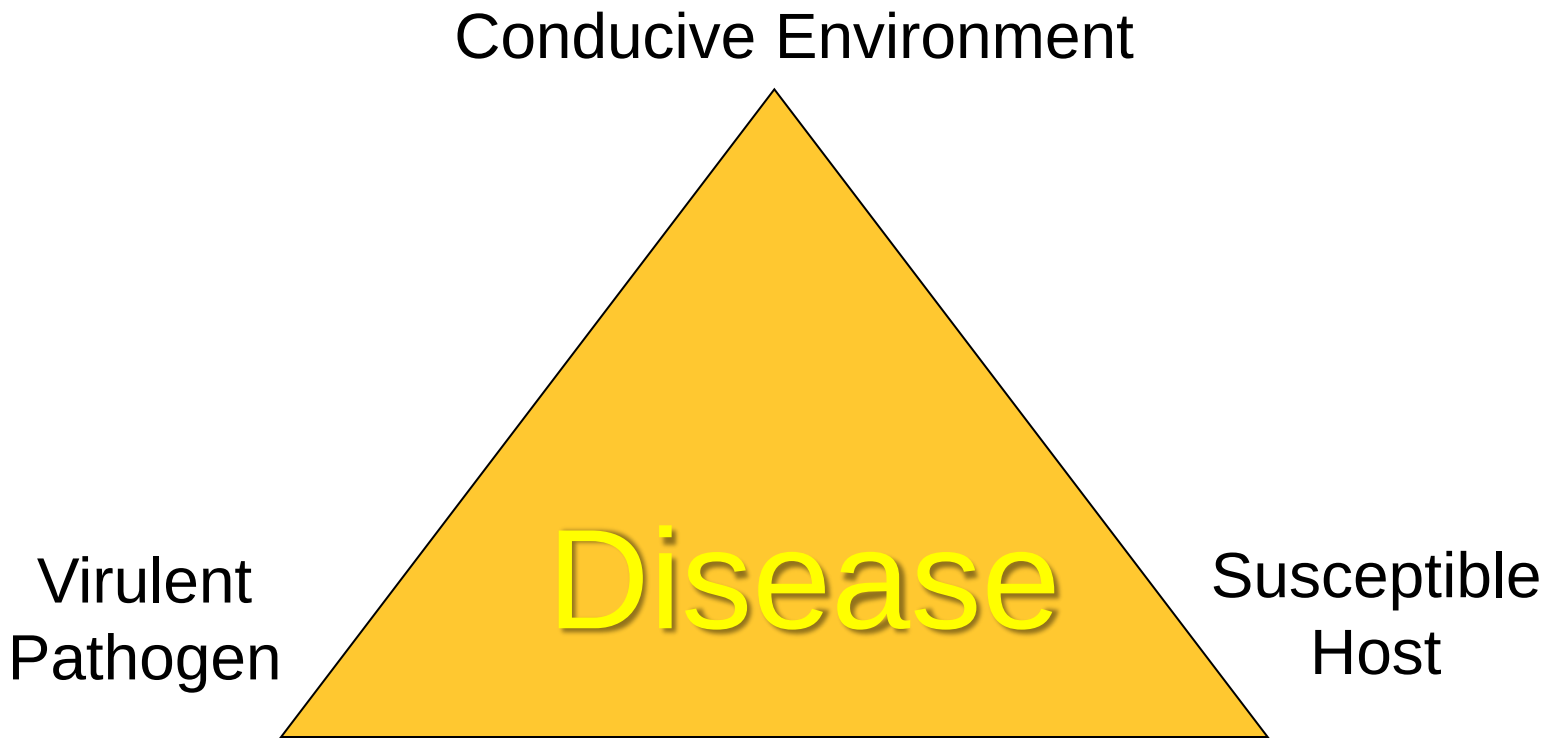
Susceptible Host

- Growth stage
- Genetic resistance
- Was it treated???

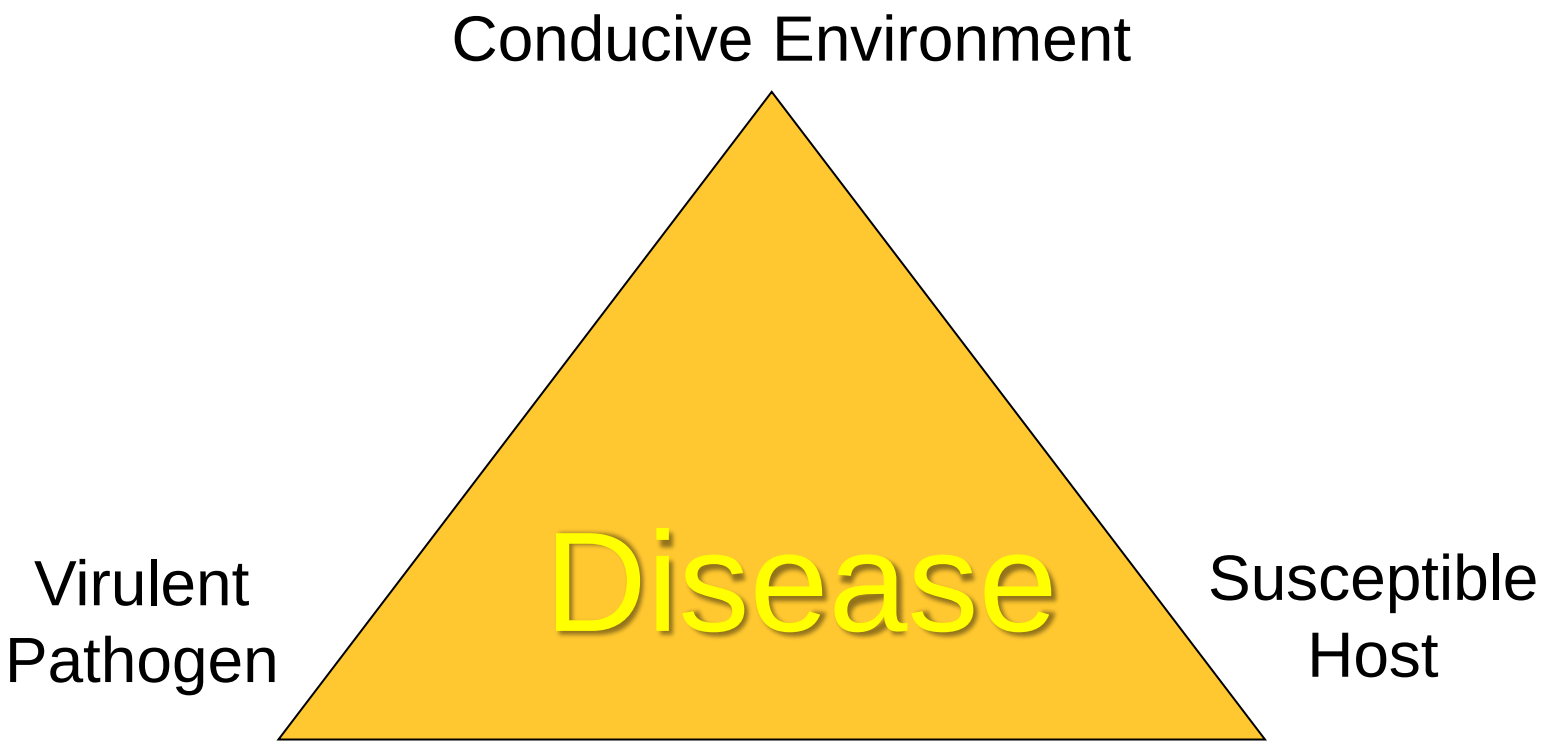
Disease Triangle

Virulent Pathogen

- Is it present?
- Is it XXXX–borne?
- What race, Hg-type, f.sp., strain, etc.?
- Is the vector present?
- Epidemic potential?



Disease Triangle

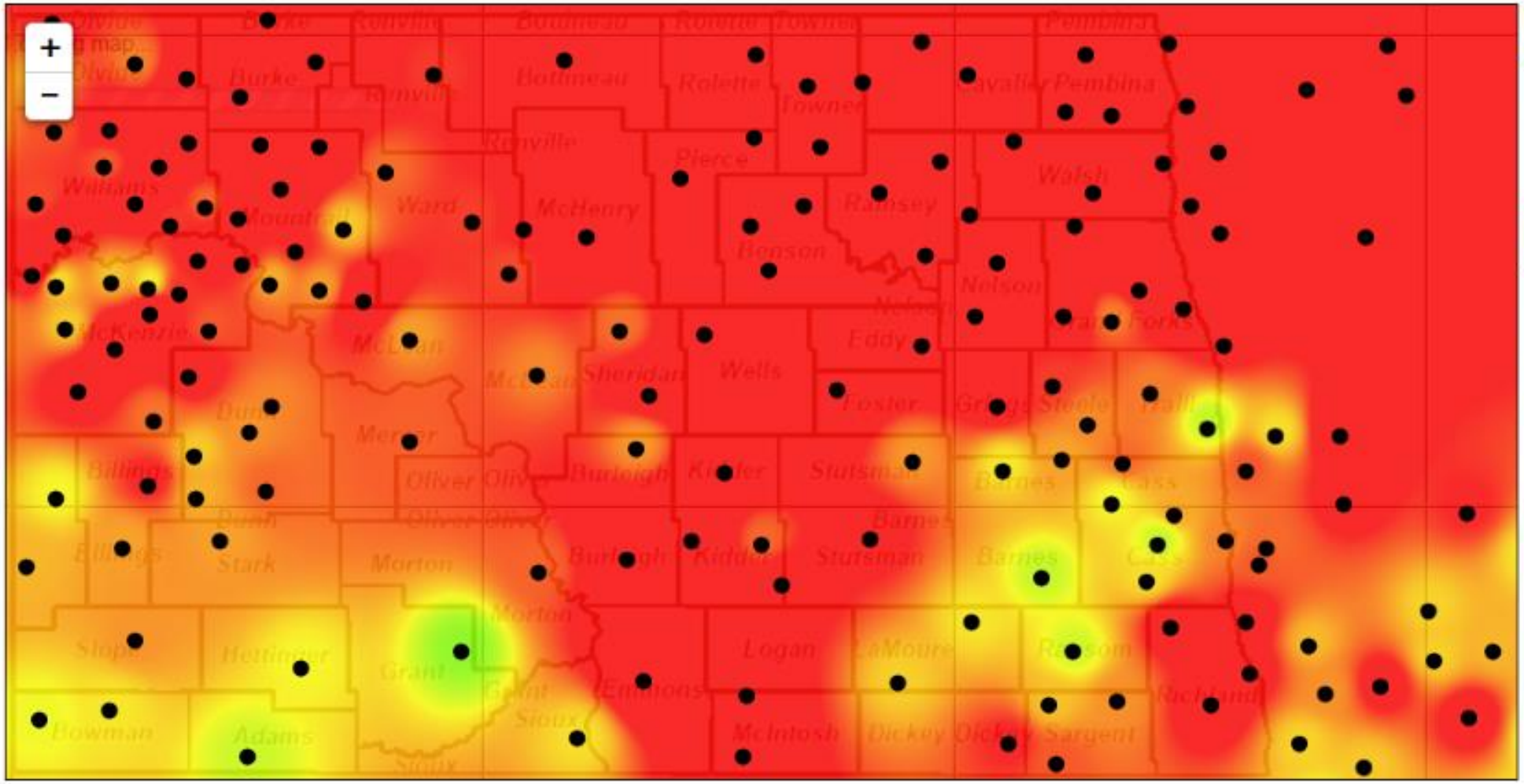


Cond. Env.

- Leaf wetness (hrs)
- Temperature (air, soil, dew point temp)
- RH, PET
- Water splash
- Wind speed
- Damage
  - Hail, insect, wind

Canola white mold risk map

Estimated risk of Sclerotinia stem rot development for canola 07/04/2025



Previous risk maps

Select date:

Thu Jul 04 2024

Get Map

Risk calculator

Closest NDAWN Station:

Last time planted to canola:

Sclerotinia on last canola:

Last year's crop in this field:

Tillage last year:

Canola Row Spacing:

Canola type:

Date of Planting:

Calculate Risk

Estimation of the risk of sclerotinia stem rot development is based on temperature and precipitation patterns prevalent in the region as recorded by NDAWN stations. Areas where conditions are favorable for infection are presented in red; If apothecia are prsent in these fields fungicide applications may be warranted. Fields in yellow areas should be scouted for apothecia and changing weather conditions. Fields in green areas have low risk of disease development. The estimation of risk applies to canola fields that are in the flowering period only.

Previous risk maps

Select date:

Thu Jul 04 2024

Get Map

Risk calculator

Closest NDAWN Station:

Cooperstown

Last time planted to canola:

two years ago

Sclerotinia on last canola:

Some Sclerotinia but not app

Last year's crop in this field:

Wheat

Tillage last year:

Minimum Till

Canola Row Spacing:

Between 8 - 12 Inches

Canola type:

Round up Ready

Date of Planting:

Wed May 01 2024

Calculate Risk

Low Risk!

The estimation of risk obtained using the calculator combines the cropping history of your fields and weather data from the nearest NDAWN station.

A low risk warning means that conditions in the previous days have not been favorable for disease development or your fields may not have sclerotia. There is a high probability that disease will not develop to levels that require fungicide use. However, if your crop is just entering the flowering stage you should continue monitoring weather conditions and look for apothecia. Remember that the final decision on whether to spray or not should be made by you considering additional factors like yield potential of your present crop and the presence or absence of apothecia in your field. A list of fungicides registered for use in canola in North Dakota is available here.

Close

Previous risk maps

Select date:

Thu Jul 04 2024

Get Map

Risk calculator

Closest NDAWN Station:

Cooperstown

Last time planted to canola:

last year

Sclerotinia on last canola:

Sclerotinia Present, Applied F

Last year's crop in this field:

Canola

Tillage last year:

No-Till

Canola Row Spacing:

7 Inches or less

Canola type:

Round up Ready

Date of Planting:

Wed May 01 2024

Calculate Risk

Intermediate Risk!

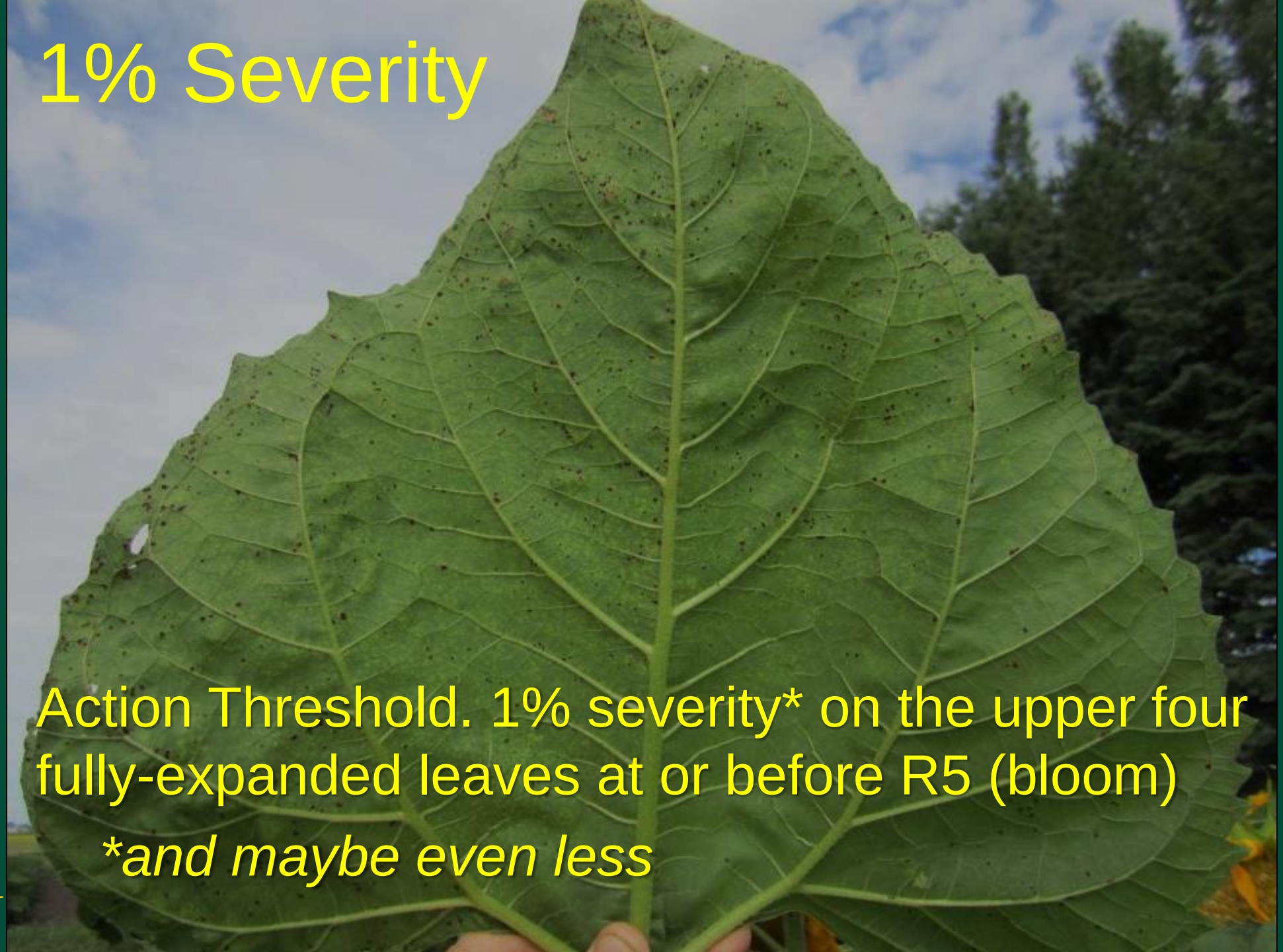
The estimation of risk obtained using the calculator combines the cropping history of your fields and weather data from the nearest NDAWN station.

A moderate risk warning means that conditions prevalent in your area could result in disease development if the weather turns cooler and rainier in the next few days, especially if Sclerotinia has developed in your field within the last two seasons. Scout your fields for the presence of apothecia and keep monitoring weather conditions, especially if your canola has just entered the flowering stage. Even though the use of fungicides might not be warranted at this time, the final decision on whether to spray or not should be made by you based on yield potential of your present crop and the presence or absence of apothecia in your field. A list of fungicides registered for use in canola in North Dakota is here.

Close

Sunflower Rust

1% Severity



Action Threshold. 1% severity* on the upper four fully-expanded leaves at or before R5 (bloom)

**and maybe even less*

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Epidemic Curve

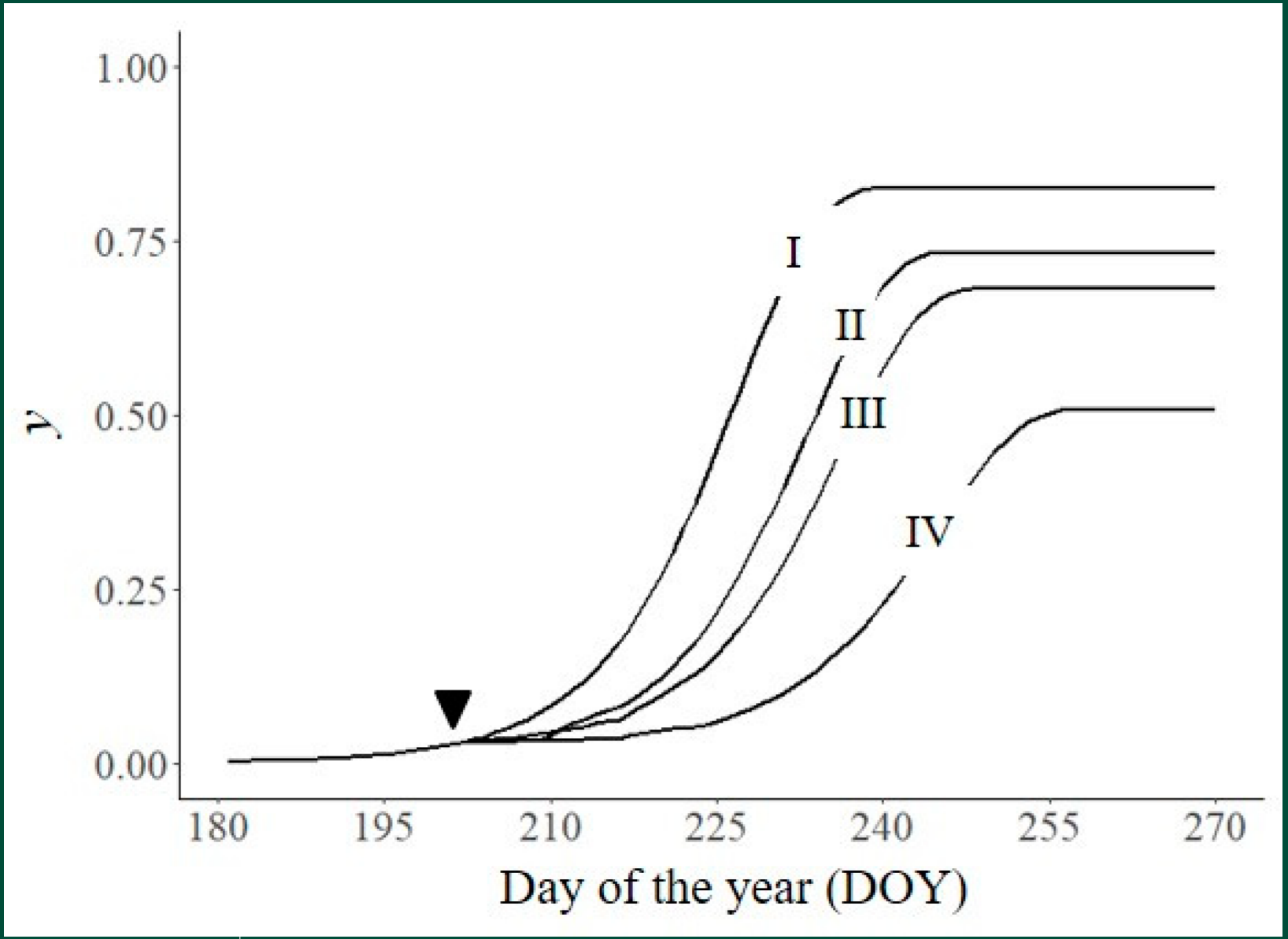
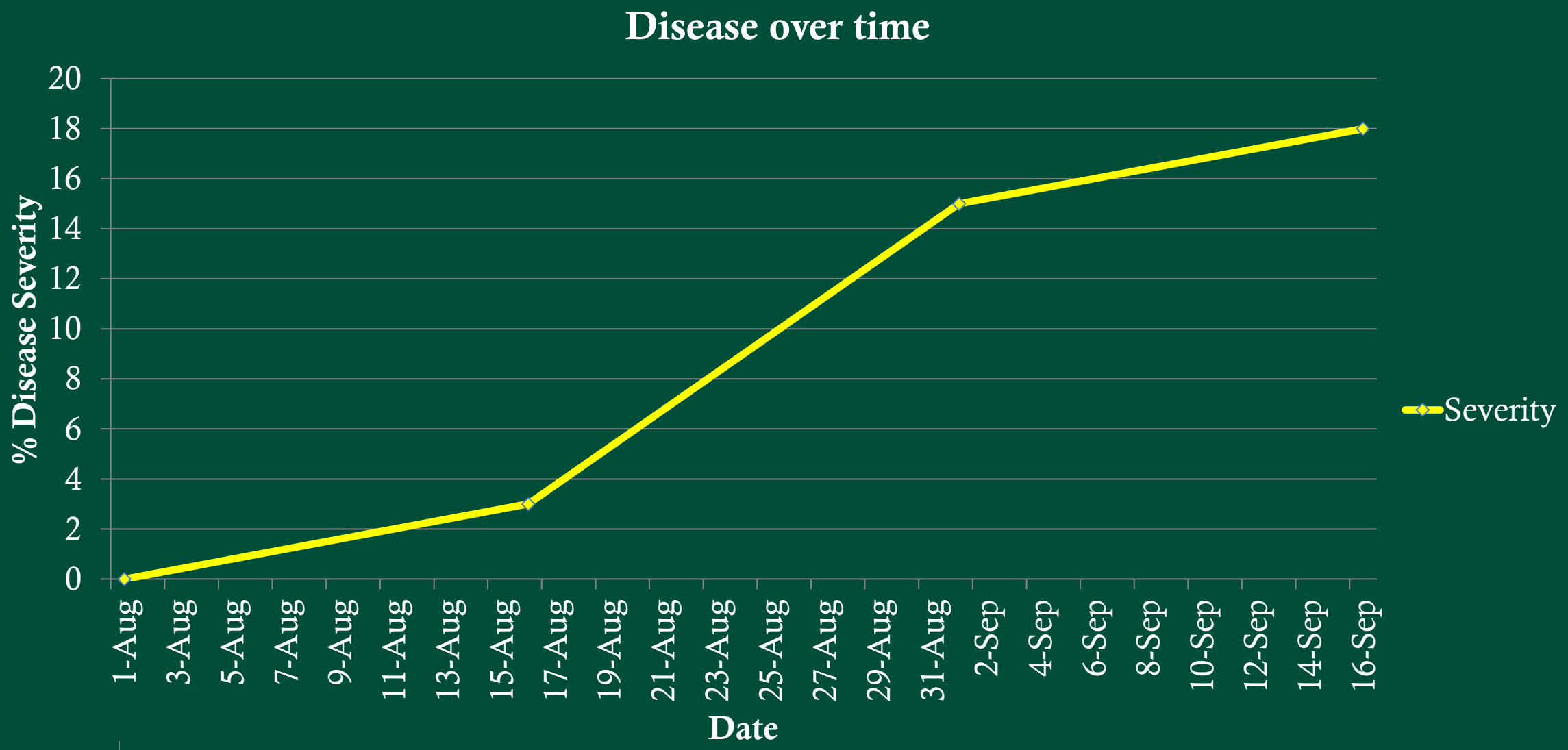


Figure 5. Effect on disease severity (y) of one treatment with protectant fungicides applied on DOY 202 (▼). I: untreated control, as in Figure 2; II: efficacy of 95% for 7 days; III: efficacy of 95% for 14 days; IV: efficacy of 70% for 14 days. Symbols are listed in Table 1.

From Gonzalez-Dominguez et al. 2020. Agronomy J. 10(4) 462

AUDPC = Area Under Disease Progress Curve



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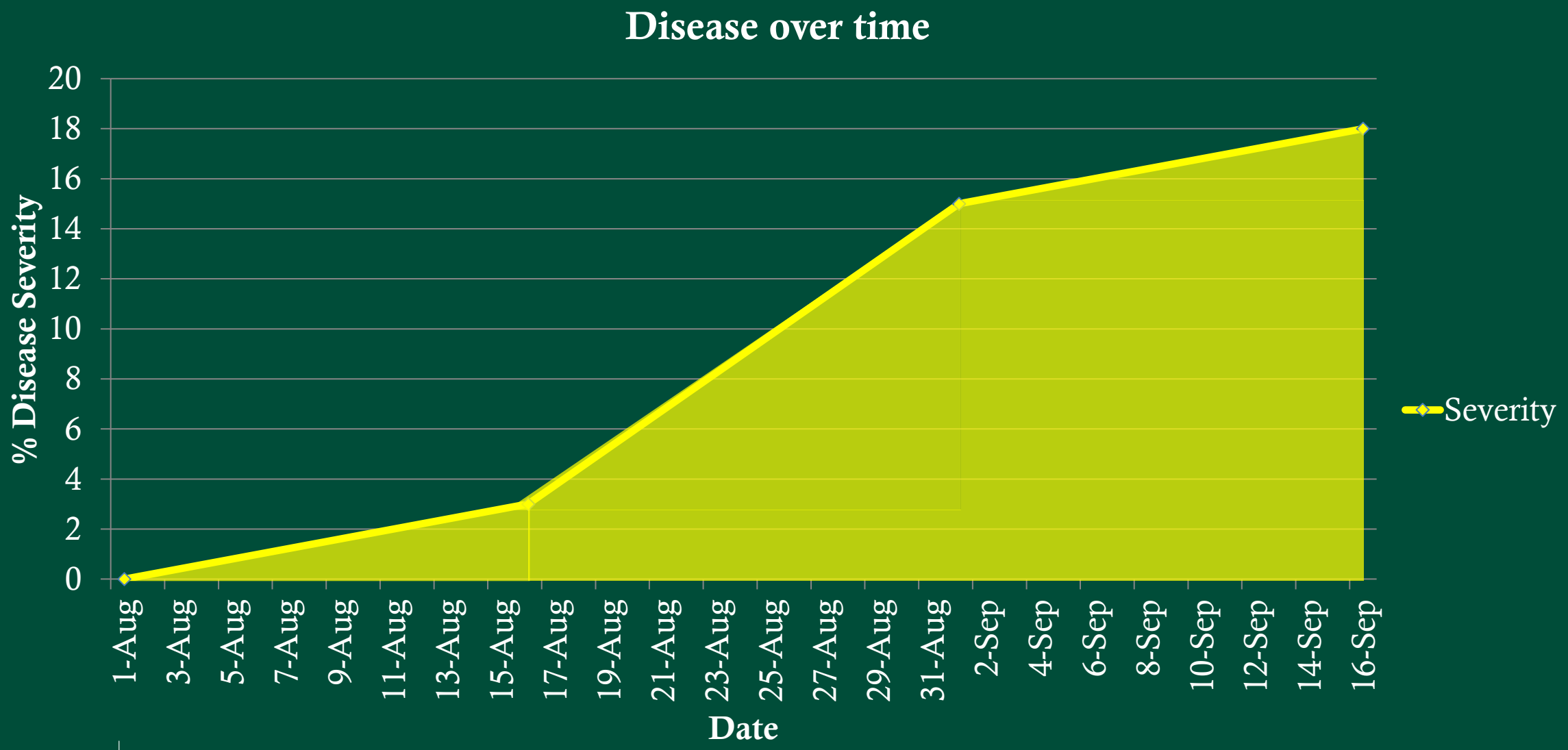
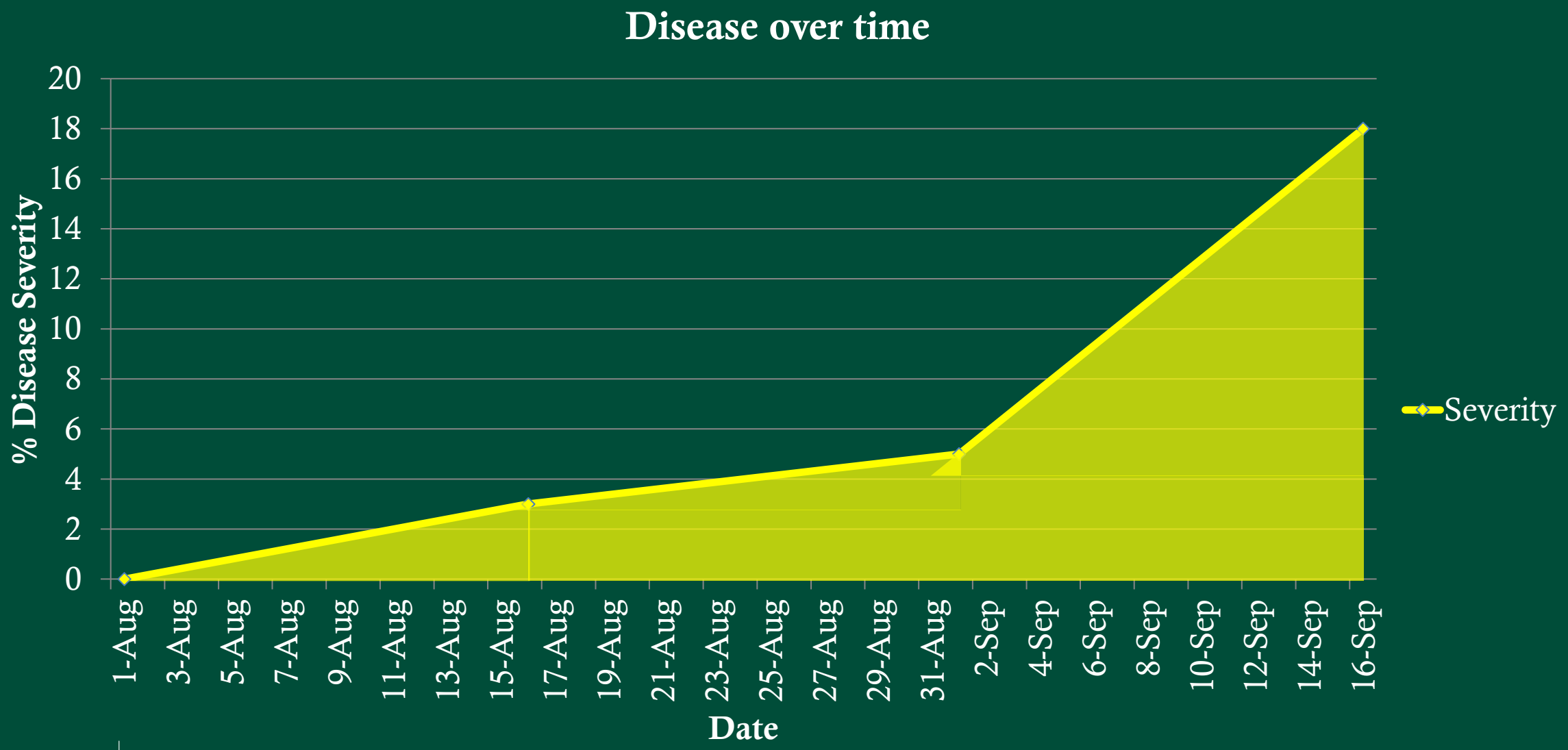


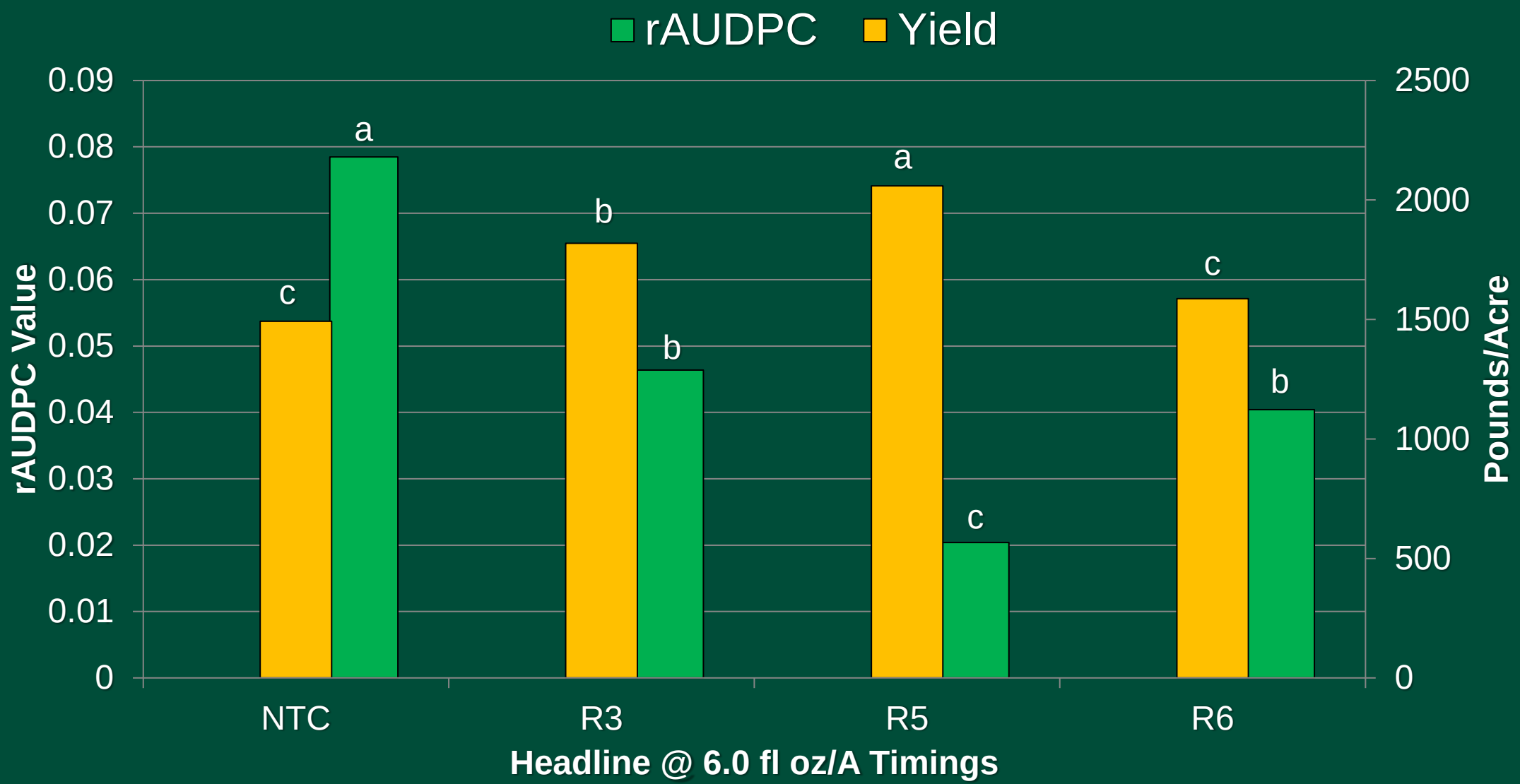
AUDPC = Area Under Disease Progress Curve



Efficacy Trials – CREC 2009

Treatment	% Sev	Disease severity R3-4	R5.5-5-9	R6	R6-7	R7-8	AUDPC	rAUDPC	Yield (lb/A)
Non-treated Control	~1%	0 a	0.2 a	1.6 a	6.9 a	23.8 a	258.5 a	0.053 a	1555.2 c
Proline @ 5.7 fl oz	~1%	0 a	0.2 a	1.0 b	1.2 c	8.8 bc	86.1 bc	0.018 bc	2120.8 a
Prosaro @ 6.5 fl oz	~1%	0 a	0.2 a	1.0 b	1.1 c	4.7 c	57.1 c	0.012 c	2217.8 a
Tebuzol @ 4.0 fl oz	~1%	0 a	0.2 a	1.0 b	1.1 c	3.8 c	51.0 c	0.01 c	2118.0 a
Headline @ 9.0 fl oz	~1%	0 a	0.2 a	0.6c	0.9 c	14.8 b	122.1 b	0.025 b	2083.1 ab
Quadris @ 9.0 fl oz	~1%	0 a	0.2 a	1.2 b	2.0 b	15.9 ab	147.9 b	0.03 b	1824.5 bc
LSD ($P \leq 0.05$)		0	0.1	0.3	0.8	8.1	63.2	0.013	283.4

Timing Trials 1 – CREC 08 & 09



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0% at R3 1-2% at R5 >4% at R6

Headline Timing Trial: Carrington 2008

Treatment	Disease Severity R6-7	Yield (lb/A)
Untreated Control	8.7	1501
1 wk before dis (R3.5)	4.1	1720
Approx 1% sev (R5)	1.3	1899
Approx 7% sev (R6-7)	6.0	1440
R3 + R5.2 + R6.0	0.4	1941
LSD	2.4	306

Yellow text indicates time of disease onset
All Fungicide Applications were 9 oz Headline

POTATO: (*Solanum tuberosum* 'Russet Burbank')
Early Blight; *Alternaria solani*

S. Markell, J. Pasche, G. Secor, and N. Gudmestad
North Dakota State University
Fargo, ND 58105

Efficacy of experimental foliar fungicide programs on control of early blight in Tappen, ND, 2007.

Potatoes (*Solanum tuberosum* 'Russet Burbank') were planted in four-row plots with rows 30-ft long and 36-in apart in Tappen, ND on 8 May; 2007 in a randomized complete block design with four replications. Seeds were spaced 14-in apart in

Treatment and rate	Days after first application	AUDPC	RAUDPC	Yield (cwt/A)
Untreated Control.....	Not Applicable	100.3 bcd	0.015 bcd	473.6 fgh
Bravo Zn 2.125pt/A V-10116 2.0 oz/A.....	0, 7, 20, 35, 48, 61, 70 14, 27, 41, 54	69.4 bcde	0.011 bcde	510.5 bcdef
Bravo Zn 2.125pt/A V-10116 3.0 oz/A.....	0, 7, 20, 35, 48, 61, 70 14, 27, 41, 54	60.7 cde	0.009 cde	549.6 ab
Bravo Zn 2.125pt/A V-10116 4.0 oz/A.....	0, 7, 20, 35, 48, 61, 70 14, 27, 41, 54	63.7 cde	0.010 cde	589.6 a
Bravo Zn 2.125pt/A Endura 2.5 oz/A.....	0, 7, 20, 35, 48, 61, 70 14, 27, 41, 54	5.2 e	0.001 e	512.0 bcdef