

Welcome!

- We'll use Kahoot! for quizzes today.
- Go to the link or scan the **QR code** to enter the quiz (game) PIN
- <https://go.unl.edu/downloadkahoot>
- We'll provide the "Game PIN" to start
- Or you can download the Kahoot! App (free version) to your smartphone or other device

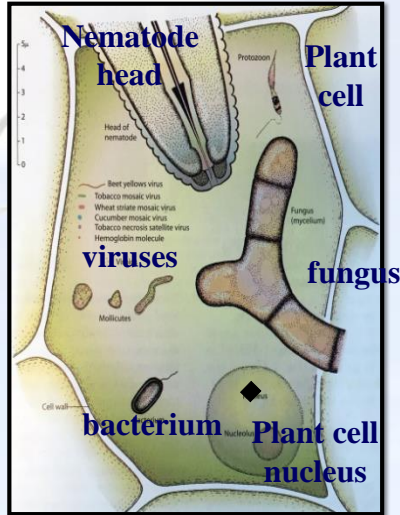


Identification of Corn Diseases



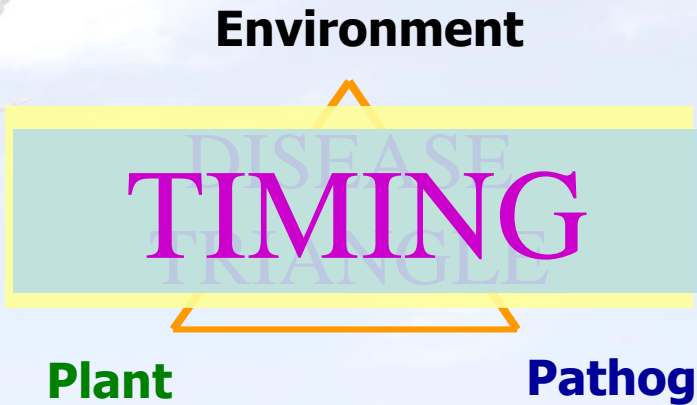
Tamra Jackson-Ziems
Department of Plant Pathology

How big are Plant Pathogens?



Common plant pathogens and their size relative to each other and to a plant cell

Three components necessary for disease development



Environment

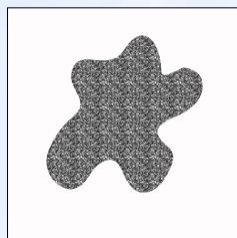
Many pathogens require moisture for sporulation and infection

Some pathogens can use wounds to infect!



Symptom Distribution

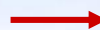
By assessing symptom distribution at three scales, your diagnosis will come much easier



Field



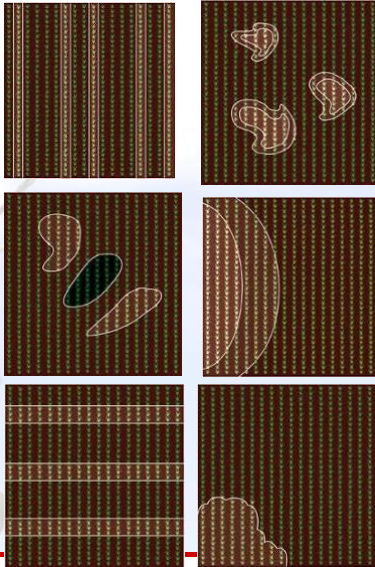
Plant



Plant Parts



Symptom Distribution



Step 1: FIELD

Determine the distribution in the field



Symptom Distribution

Step 2: PLANT

Determine the distribution on the plant



Symptom Distribution

Step 3: LEAF (PLANT PART)

Determine the distribution on the plant part(s)



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Corn Seedling Diseases

Pythium



- Seed decays
- Pre- or Post-emergence damping-off
- Poor root development

Fusarium



Rhizoctonia



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Look for seedling skips. . .

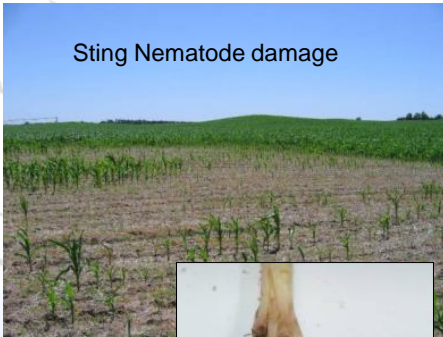


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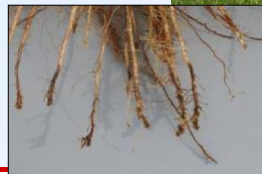
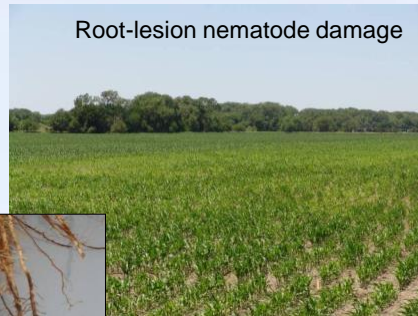
Corn Nematodes

Sting Nematode damage



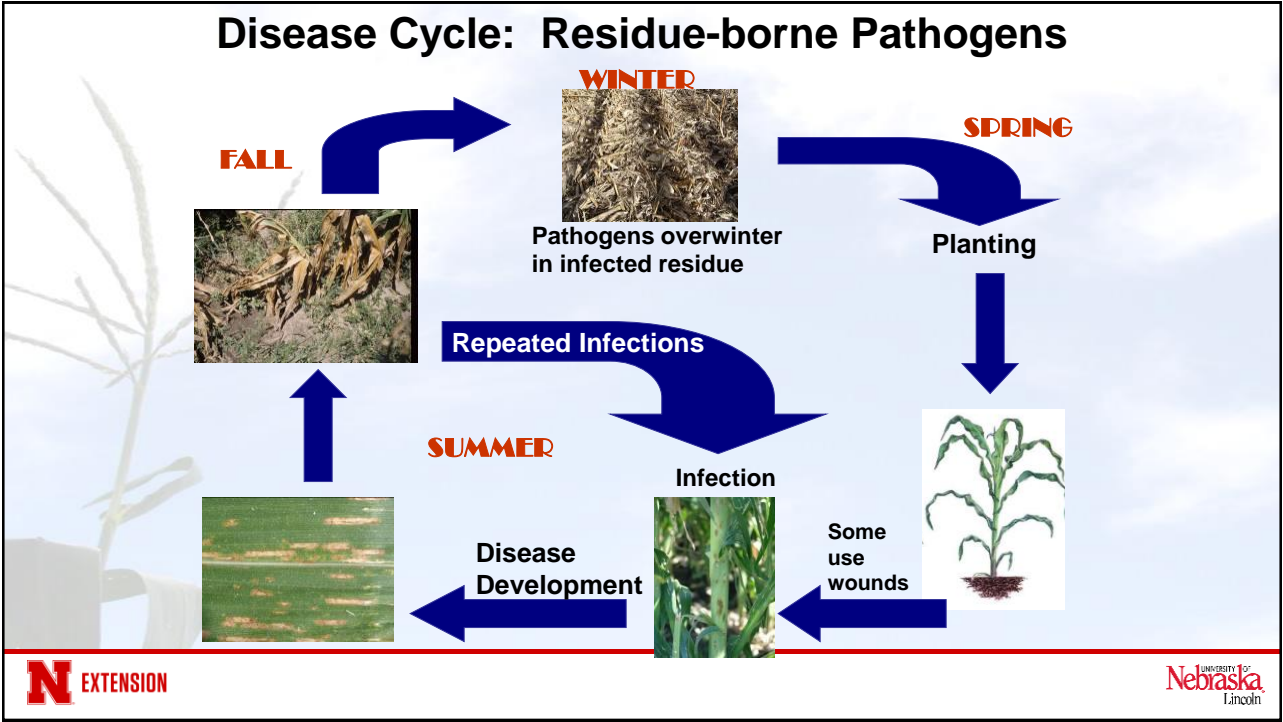
- Cause many types of symptoms
- Usually evident in seedlings early season
- Look for root symptoms/damage

Root-lesion nematode damage



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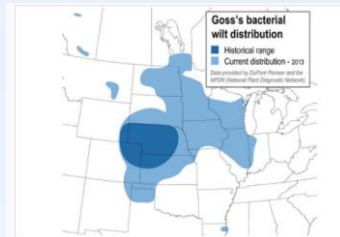


Diseases Caused by Bacteria

Logos for **N EXTENSION** and **University of Nebraska Lincoln** are present at the bottom.

Goss's Bacterial Wilt and Blight

- Symptoms – water-soaked spots (freckles) on edges of lesions
- Pathogen survives in residue
- Infect through wounds or natural openings
- Hybrid resistance and tolerance is available



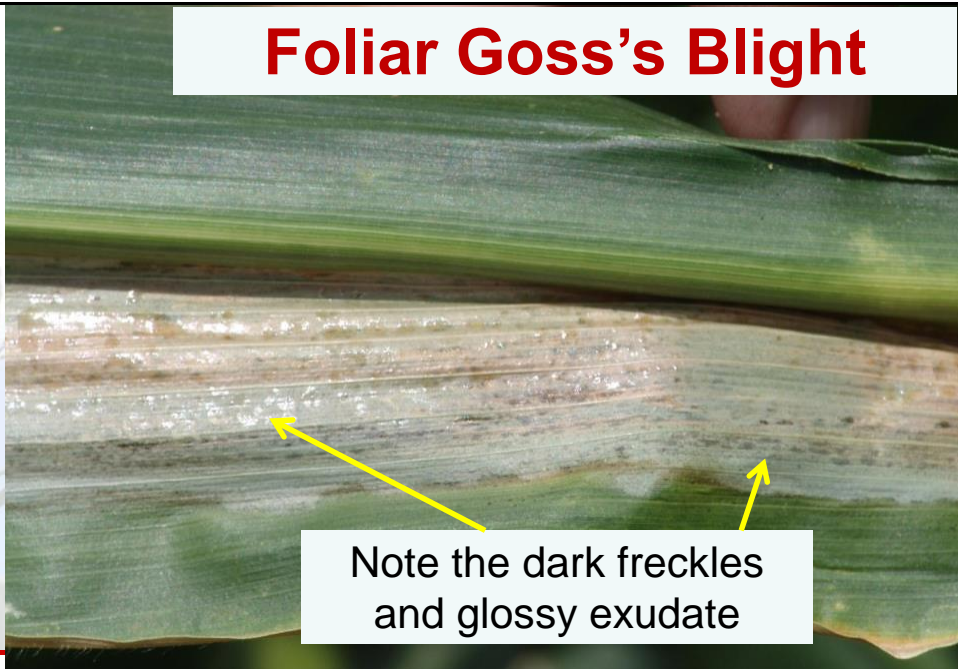
https://www.pioneer.com/CMRoot/pioneer/US/images/agronomy/library_com/diseases/wilt/goss-wilt-map-2013.jpg



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Foliar Goss's Blight



Note the dark freckles
and glossy exudate

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Bacterial Leaf Streak (BLS) of Corn

Symptoms

- Interveinal leaf streaks
- Brown, tan, or yellow streaks that are short or very long
- Appear strikingly yellow when backlit
- May develop on the **lower leaves initially**
- sometimes confused with fungal disease, gray leaf spot

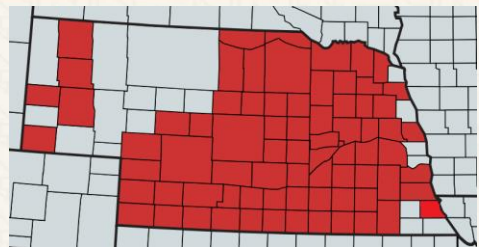


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Bacterial Leaf Streak (BLS) of Corn

U.S. Distribution

- Confirmed First in NE, 2016
Nebraska (75 counties), Kansas, Colorado, Iowa, Illinois, Oklahoma, Texas, Minnesota, South Dakota
- Likely present in other counties and states
- Impacts on yields yet unknown.
- Affects dent corn, popcorn, seed corn, and sweetcorn

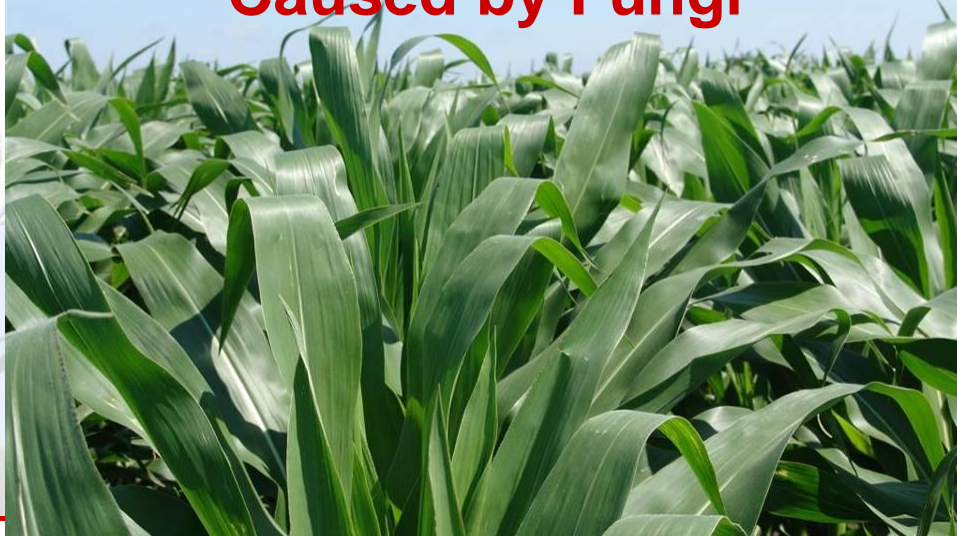


Hartman, T. M



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Leaf Diseases in Nebraska Caused by Fungi



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Southern Rust

Optimal temperature ~80°F

- Including warm night temperatures

Orange/tan pustules

**Predominantly sporulates on
upper leaf surface**

Aggressive pathogen,
reproducing quickly in
susceptible hybrids and with
favorable weather

Management

Fungicides necessary if it
develops early during grain fill
with favorable (warm/wet)
forecast



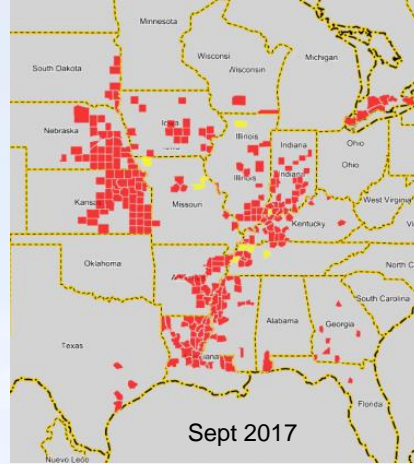
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Southern Rust

- WATCH map for development
- Warm temperatures and humid conditions are favorable
- Cooler temperatures can slow disease
- **NEW monitoring website:**
 - <http://ext.ipipe.org/>

Rusts do NOT overwinter = spores must blow north annually



Common Rust



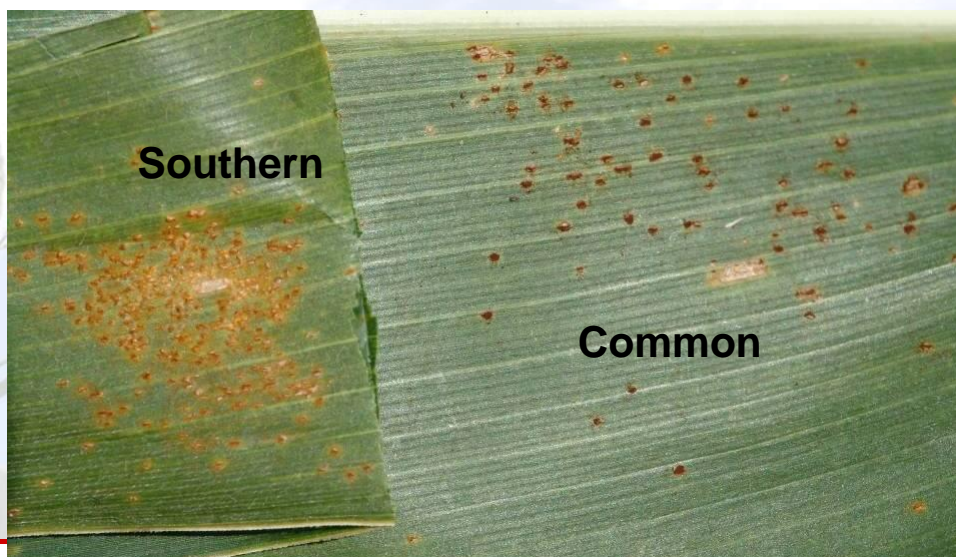
- Common disease
- Early season moisture
- Optimal temp 70's °F
- Brick red/brown pustules**
- Sporulates on both leaf surfaces**



Management

- Usually unnecessary
- Fungicides are effective
- Natural resistance in most hybrids

Southern Rust or Common Rust?



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Gray Leaf Spot (GLS)

- Requires leaf wetness/dew or **>95% humidity for 11+ hours**
- Early symptoms similar to other diseases (e.g. bacterial leaf streak, eyespot, Holcus spot, etc.)
- Small lesions coalesce to form rectangular gray/brown lesions with **smooth margins**
- Develops **on lower leaves first**

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Symptoms of GLS

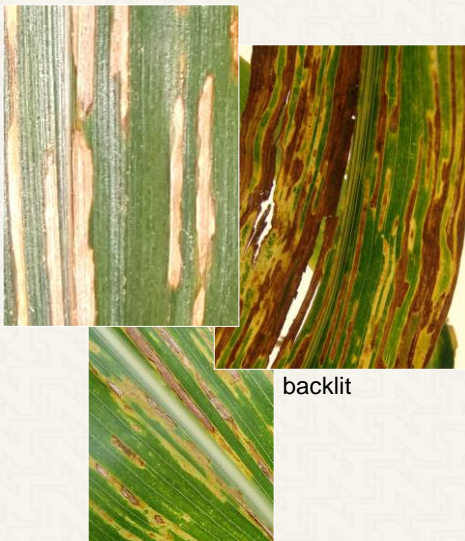


Symptom appearance will vary by hybrid/inbred.



Bacterial Leaf Streak

Gray Leaf Spot



Northern Corn Leaf Blight (NCLB)

- Most common in humid environments
- Moderate/cooler temperatures (64-80 F)
- >50% yield loss if disease develops by tasseling

Symptoms

- Medium to large “cigar-shaped” lesions
- Sporulation in middle may appear dusty



N

Northern Corn Leaf Blight (NCLB)



Management

- ✓ Resistance available in some hybrids
- ✓ Foliar fungicides
- ✓ Crop rotation
- ✓ Tillage



N

Goss's Wilt & Blight



Northern Leaf Blight



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Tar Spot

- *Phyllachora maydis*
- and/or *Monographella maydis* in Latin America
- Confirmed in U.S. 2015

Symptoms

- Black dots (ascomata)
- “Fisheye” rings
- < 50% yield loss



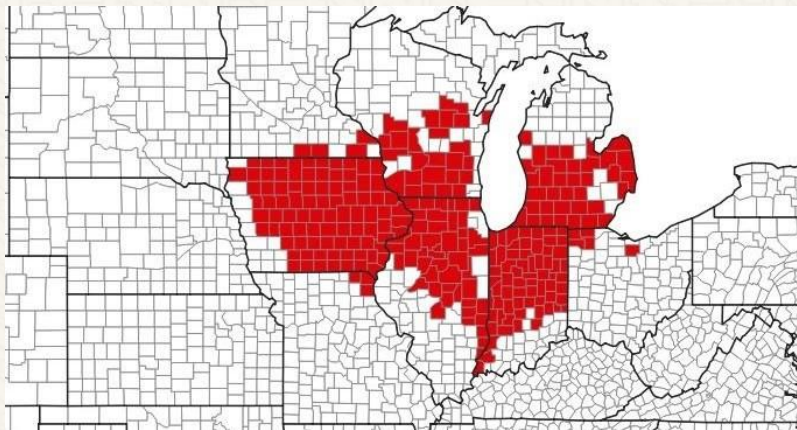
D. Smith, Univ. of Wisconsin



M. Chilvers,
Michigan State Univ

N EXTENSION

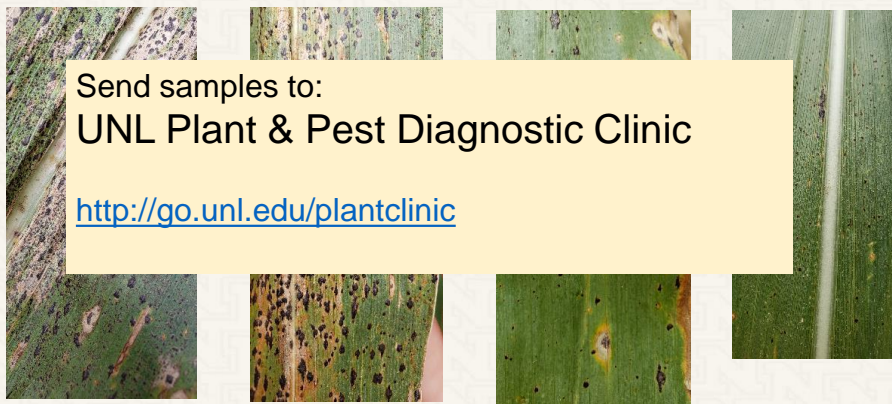
October 2019 Tar Spot Distribution



<https://corn.ipmpipe.org/tarspot/>

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What to watch for: Tar Spot in Nebraska



Send samples to:
UNL Plant & Pest Diagnostic Clinic

<http://go.unl.edu/plantclinic>

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Nebraska Corn Fungicide Trials

UNL – SCAL near Clay Center, NE

- VT application July 26
- Temp = 88F
- Wind = 10 mph, WSW
- Experiment Design
 - Plots: 4-rows wide, 40 ft. long
 - 6 replications/treatment
- Ground Application
 - 20 gpa
 - 40 psi
 - 3 mph
 - 6-nozzle boom
 - 11002 nozzles

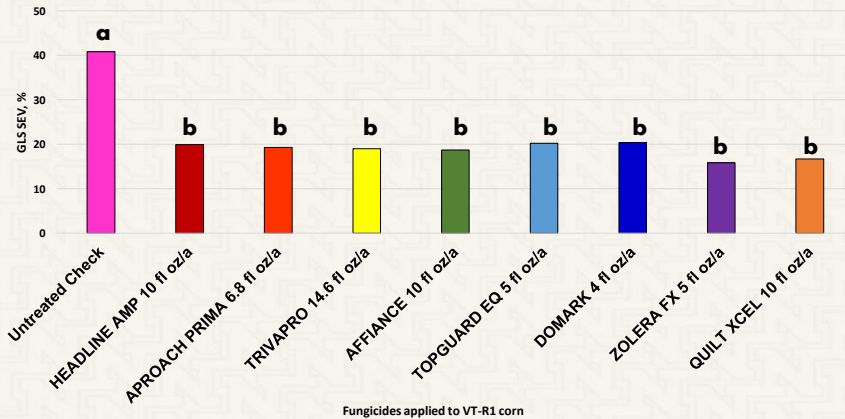


UNL South Central Ag Lab, near Clay Center, NE



Gray Leaf Spot Severity, 55 DAT

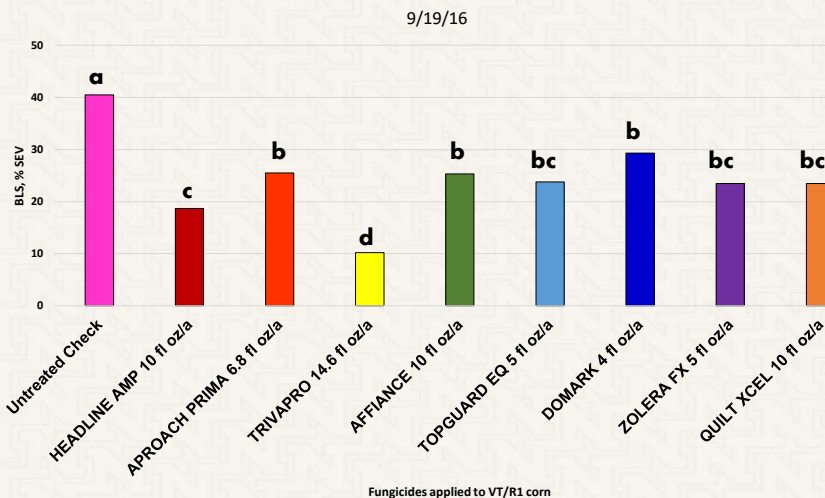
9/19/16



UNL South Central Ag Lab, near Clay Center, NE



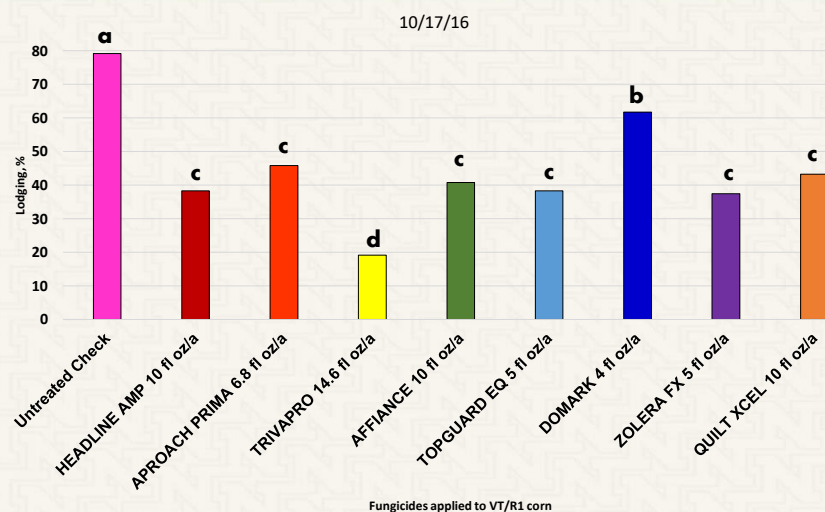
Southern Rust, 55 DAT



UNL South Central Ag Lab, near Clay Center, NE

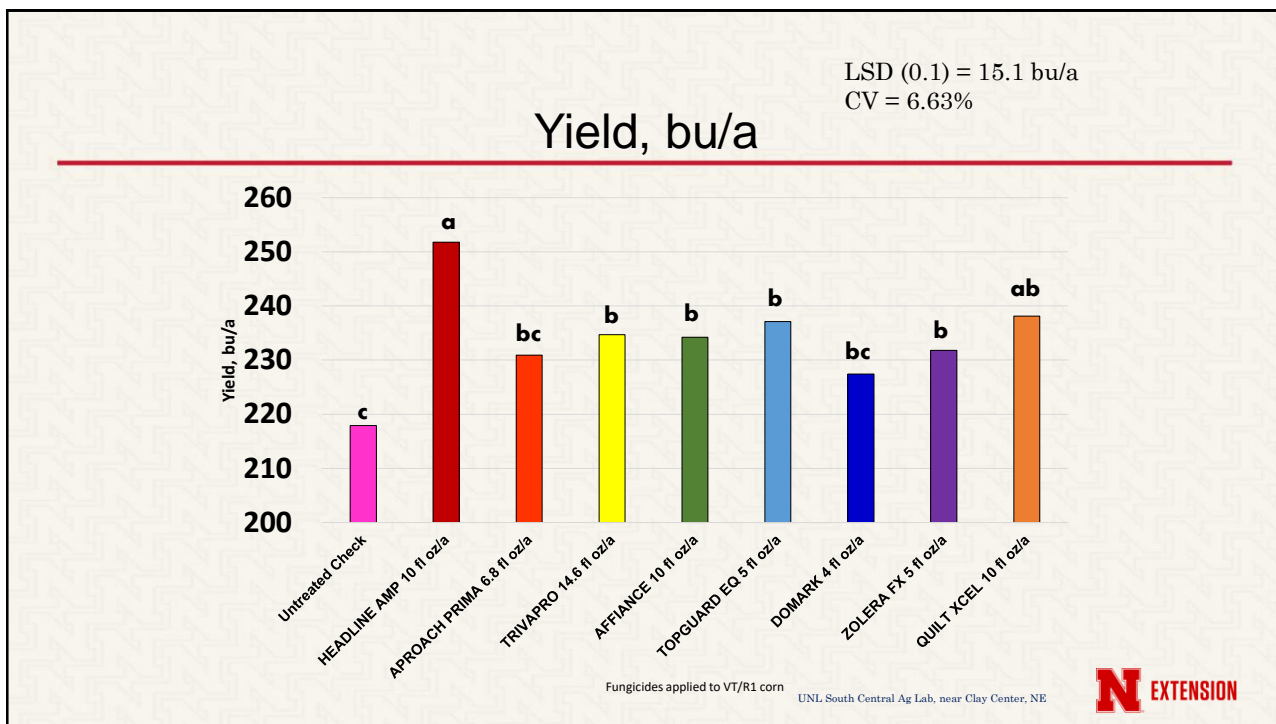


Push Lodging, 83 DAT



UNL South Central Ag Lab, near Clay Center, NE





Crop Disease Resources



- Crop Watch - <http://cropwatch.unl.edu/>
 - Newsletter, efficacy trial data, and publications



- Market Journal – weekly episode or see videos at: <http://marketjournal.unl.edu/corndiseases>



- Videos – YouTube – UNL CropWatch channel
 - short Corn Disease videos



- Crop Protection Network <http://cropprotectionnetwork.org>



- Tamra Jackson-Ziems on Twitter - @tjcksn
- Contact local county Extension office



Identification of Soybean Diseases

Tamra Jackson-Ziems
Department of Plant Pathology



University of Nebraska-Lincoln
Institute of Agriculture and Natural Resources

Identification and Management of Soybean Diseases

Tamra Jackson-Ziems
Department of Plant Pathology



University of Nebraska-Lincoln
Institute of Agriculture and Natural Resources



Soybean Seedling Diseases



Pythium damping-off and root rot



Rhizoctonia cortical and root rot

NOT a disease
in CORN



Phytophthora
root and
stem rot



Fusarium
root rot

Diseases/Disorders Cause Cotyledon Injury



Pythium seedling blight



Pre-emergence herbicide injury

Phytophthora Root and Stem Rot



- Pre- and post-emergence damping off.
- Stunted plants.
- Older plants can die throughout the season.
- Disease development is favored by saturated soils.



Conditions for disease development

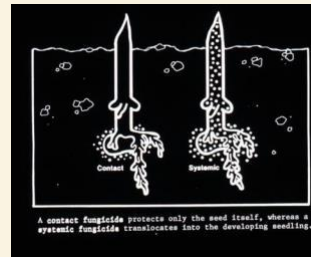
	Soil moisture	Soil temperature
Pythium	Wet	Usually Cool (50-60 F)*
Phytophthora	Wet	Warm (70s F)
Fusarium	Wet to dry	Cool to warm
Rhizoctonia	Damp to wet	Warm (70-80s F)

*Some species prefer warm conditions



Management of Seedling Diseases

- Plant high quality seed
- Improve soil drainage by tiling fields that often have excessive water
- Use seed applied fungicides
 - Know the field history
 - Match chemistry to the disease
 - Combination products



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Phytophthora Management

- Resistant varieties: specific race resistance and tolerance (most rated to Race 25)
- Over 65 races of pathogen exist
- Fungicides
 - metalaxyl and mefenoxam require increased rates
 - ethaboxam now available
- Improve field drainage

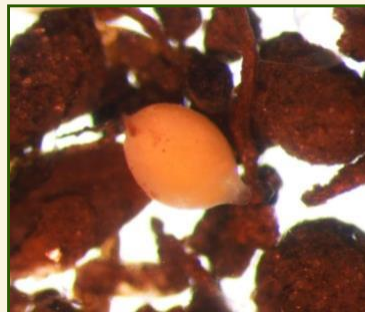




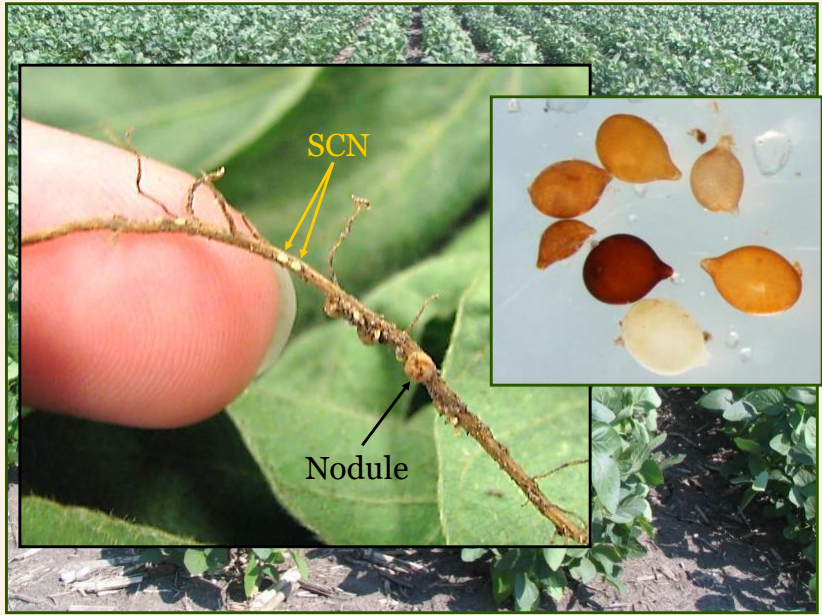
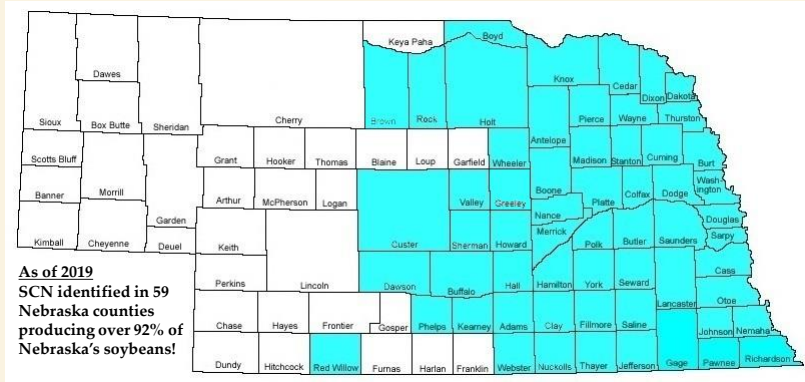
Phytophthora Management

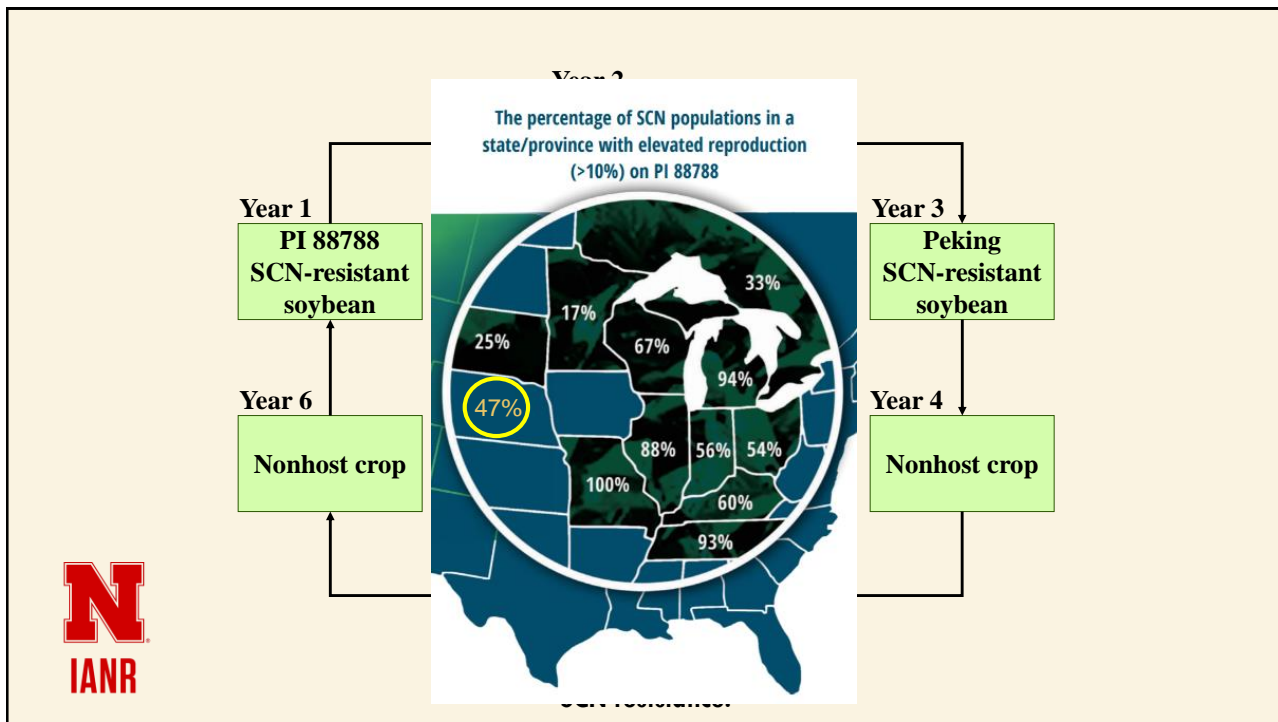
- Resistant varieties
 - Over 50 races of *P. sojae* identified
 - *Rps*: Resistance to *Phytophthora sojae*
 - *Rps* 1-c or *Rps* 1-k: most common
- High field tolerance.
- Seed treatment fungicide treatments
 - Metalaxyl, mefenoxam, or ethaboxam
 - Requires increased rates of metalaxyl or mefenoxam
- Improve field drainage
- Avoid planting fields when it is cool and wet.

Soybean Cyst Nematode (SCN)



Distribution of SCN in Nebraska





SOIL SAMPLING

(Use your check off: Free SCN Assays are available)

- Soil sampling is the first step to determine if you have SCN or not.



Sudden Death Syndrome (SDS)



Symptoms at top of the plant first



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Sudden Death Syndrome

- Varieties vary in their susceptibility to SDS



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Brown Stem Rot



Pith turns brown and forms into disks

Vascular system stays white

Sudden Death Syndrome



Pith remains white

Vascular system turns a bluish-gray to brown color.

Typically more distinct at the crown

Evaluation of products for SDS management



Daren Mueller
Iowa State
University
Extension



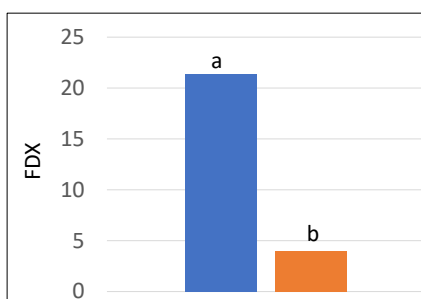
CROP PROTECTION NETWORK
A Product of Land Grant Universities

2013 to 2019 North Central SDS Product Eval. Trials

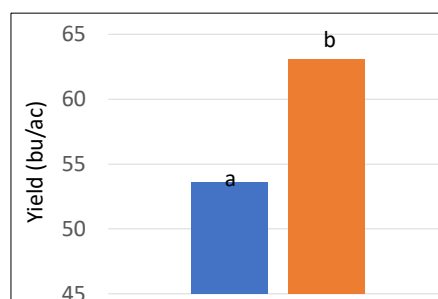
- Trials conducted in Illinois, Indiana, Iowa, Michigan, South Dakota, Wisconsin and Ontario, Canada from 2013 to 2019
- Every trial had a susceptible and resistant variety
- Different products, timings and varieties evaluated for foliar symptoms and yield
- FDX = Disease incidence (%) x Disease severity of symptomatic plants (0-9) / 9



From all seed treatment trials



■ Susceptible ■ Resistant



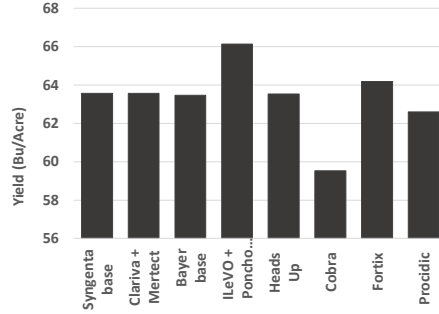
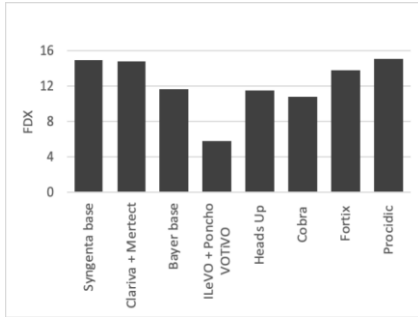
Resistant varieties

81.3% less FDX

15.1% more yield



North Central SDS Product Evaluation Trials

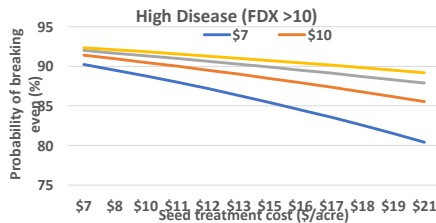
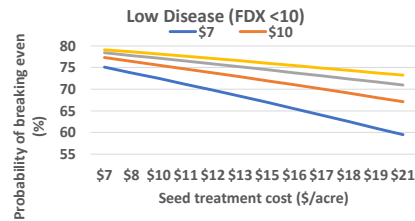
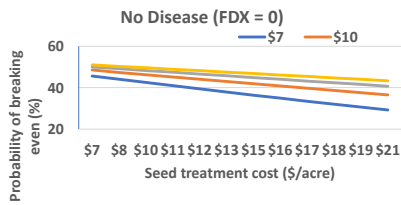


- Some seed treatment and in-furrow products effective
- All foliar products ineffective
- ILeVO most effective

Kandel et al. Plant Disease



ROI for ILeVO



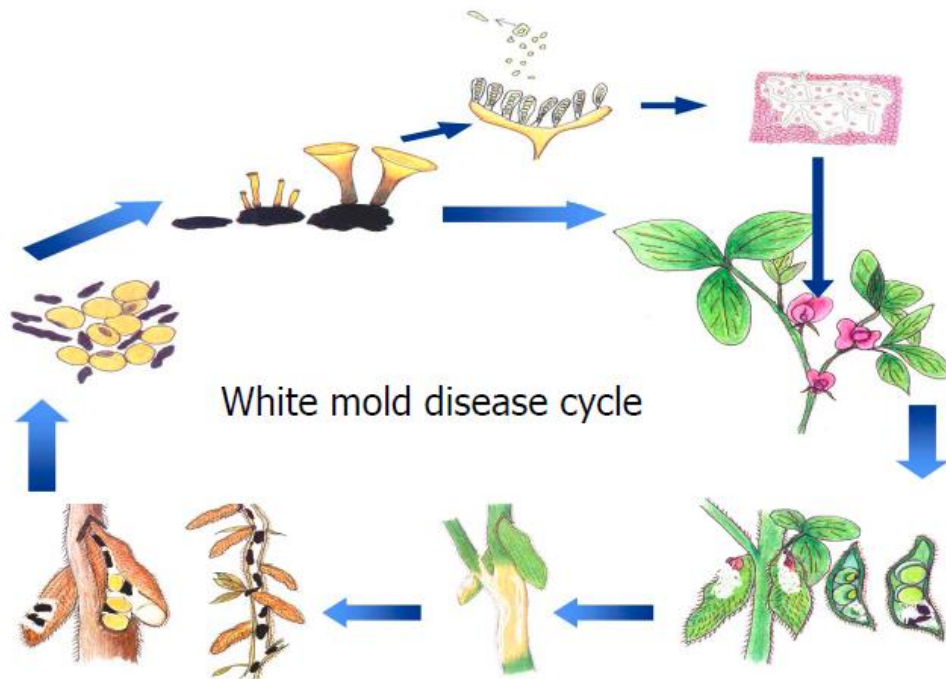
White Mold



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- Soil borne fungal pathogen
 - Survives as sclerotia
- Practices that increase yield encourage disease development
- Favored by cool, cloudy, wet weather at flowering
- Wilting in canopy followed by water-soaked spots



White Mold Management

- Partial genetic resistance available
- Crop rotation only partially effective
- Fungicides at R1-R2
 - Efficacy decreases once symptoms appear
- Reduce irrigation at flowering
- Sanitation
 - Clean equipment
 - Harvest fields last to reduce spread



Performance in WI Trials (Dr. Damon Smith – UW)

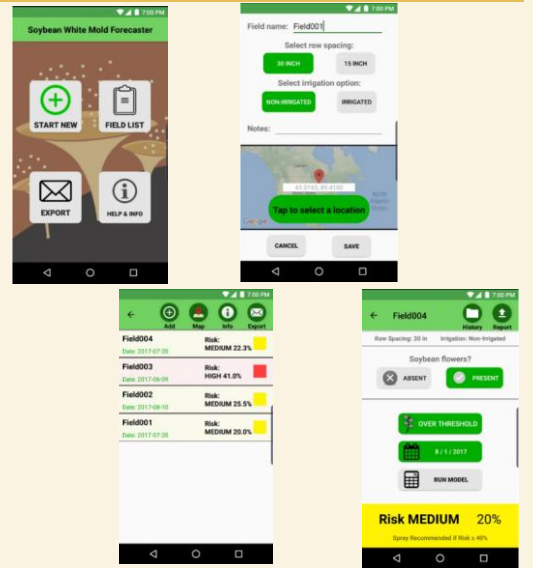
Most consistent performing programs are as follows:

1. Single application of Endura @ 8 oz. at R1/R2
2. Aproach @ 9 fl oz. Two applications (R1 & R3)
3. Proline @ 3 fl oz at R1 followed by Stratego YLD @ 4 fl oz at R3

Cobra herbicide at R1 does well, but if white mold pressure is low, you will notice some yield loss from the Cobra injury. However, if white mold pressure is high, then Cobra ends up being a top performer.

Sporecaster, The Soybean White Mold Forecaster

- Uses same models as the iPIPE version
- Available for the U.S. and Canada
- Can be run in the field or at the desk
- Uses a combination of user inputs and GPS-referenced weather information to provide a risk of white mold so you can make a spray decision
- Look for it in the Apple and Android Stores



Bacterial Blight



Brown Spot

Bacterial Pustule



Downy Mildew

Frogeye Leaf Spot



Frogeye Leaf Spot



- Fungal disease which is residue born.
- More severe in no-till and continuous soybean.

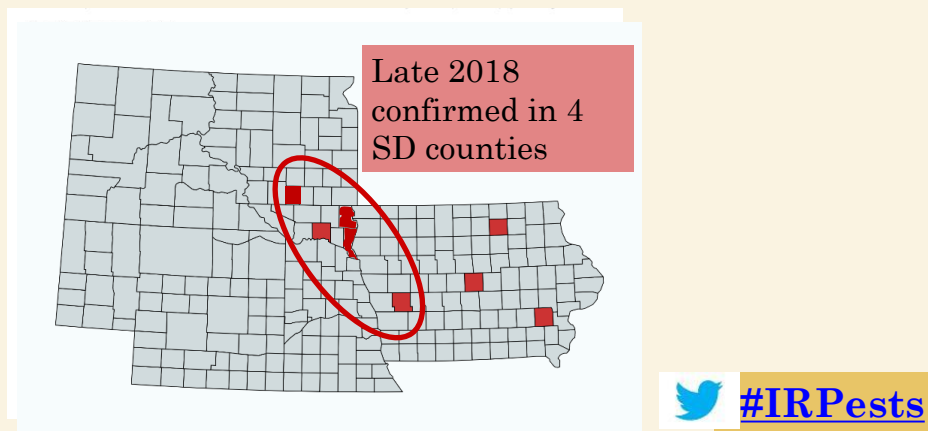


Frogeye Leaf Spot Management

- Soybean varieties vary in their susceptibility and resistant varieties are available.
- Fungus overwinters in residue and will be more severe in continuous soybean and no-till.
- Fungicides can increase yields if applied at growth stage R3- R5. Products containing QoI (strobilurin) fungicides.
 - Resistance to QoI fungicides becoming more common and close to NE
 - Consider a product with 2 or more modes of action
- ***NOTE – If you see reduced effects of fungicides – please contact us or collect/send samples for advanced testing

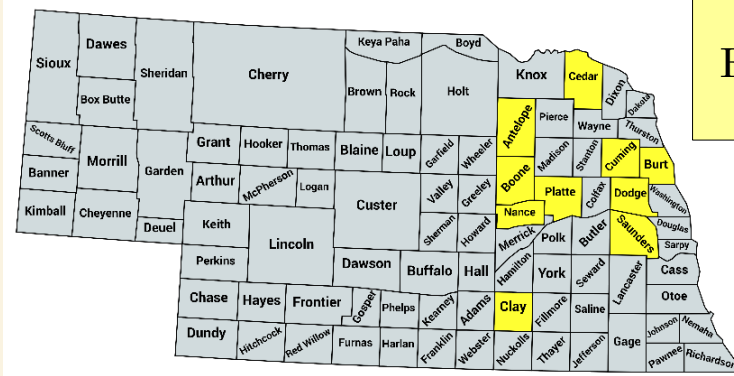


Counties and Year QoI Fungicide Resistance confirmed in *Cercospora sojina* - Frogeye Leaf Spot



Widespread Occurrence of Quinone Outside Inhibitor Fungicide-Resistant Isolates of *Cercospora sojina*, Causal Agent of Frogeye Leaf Spot of Soybean, in the United States. G. Zhang, et al. 2018. Plant Health Progress 19:295-302.
<https://doi.org/10.1094/PHP-04-18-0016-RS>

2019 – Group 11 QoI Fungicide Resistance Confirmed in Frogeye Leaf Spot in 10 Nebraska Counties



**FUNGICIDE
RESISTANCE
IS HERE!**

Resistance confirmed in 111 out of 113 *C. sojina* isolates (98%)



#IRPests

Neves, D., Jackson-Ziems, T., and Bradley, C. 2019.

Update from Iowa

- Confirmed in samples from 73 fields in 51 Iowa counties
- Resistance defined as >50% germination rates in presence of 1 ppm azoxystrobin
- E. Stoetzer and D. Mueller, ISU

2019 Sample Locations for QoI Resistant Frogeye



IOWA STATE UNIVERSITY
Extension and Outreach

Integrated Pest Management

From Jan 27, 2020 Issue

<https://crops.extension.iastate.edu/cropnews/2020/01/instances-frogeye-leaf-spot-resistance-qois-abundant-iowa>

Results of *Cercospora soja* fungicide sensitivity testing (conidial germination)

Increasing product rates to ~1,000X still ineffective

Fungicide	Rate (lb/acre)	Conidial Germination (%)
Azoxystrobin	0.01 - 100	100
Pyraclostrobin	0.01 - 100	100
Trifloxystrobin	0.01 - 100	100

Notes:

- > EC₅₀ is 50% to non-diseased is µg/ml.
- > Bradley (2010): Research funded by the Illinois Soybean Promotion Board



Fungicide Efficacy for Management of Frogeye Leaf Spot

From the Disease Management Section of the 2020 Guide for Weed, Disease, and Insect Management and the North Central Regional Committee on Soybean Diseases NCERA-137

Fungicides			Rating	
Class	Trade Name Active Ingredient (%)	Rate ¹ (per acre)		
MBC Thiophanates (Group 1)	Topsin 4.5FL Thiophanate-methyl 45.0%	10.0-20.0		
	Topsin M WSB Thiophanate-methyl 70.0%	0.5-1.0 lb	VG	
DMT Triazoles (Group 3)	Alto 100SL Cyproconazole 8.9%	2.75-5.5	F	
	Bumper 41.8 EC Propiconazole 41.8%	4.0-6.0		
	Bumper ES Propiconazole 40.85%	4.0-6.0		
	Domark 230 ME Tetraconazole 20.5%	4.5-5.0	G-VG	
	Proline 480 SC Prothioconazole 41.0%	2.5-5.0	G-VG	
	Tilt Propiconazole 41.8%	4.0-6.0	F	
	Topguard Flutriafol 11.8%	7.0-14.0	VG	
SDHI Carboximides (Group 7)	Endura Boscalid 70.0%	3.5-11.0	P	
	Vertisan Penthiopyrad 20.6%	10.0-30.0		
QoI Strobilurins (Group 11)	Aftershock / Evito 480 SC Fluoxastrobin 40.3%	2.0-2.7	P	
	Approach Picoxystrobin 22.5%	6.0-12.0	P	
	Headline Pyraclostrobin 23.6% Headline SC Pyraclostrobin 23.3%	6.0-30.0	P	
	Quadris Flowable / Satori Azoxystrobin 22.9%	6.0-15.5	P	
	2,6-dinitro-anilines (Group 29)	Omega 500F Fluxazinam 40.0%	12.0-16.0	NL
Mixed Modes of Action	3+11	Affiance Azoxystrobin 9.35% + Tetraconazole 7.48%	10.0-14.0	G-VG
		Approach Prima Cyproconazole 7.17% + Picoxystrobin 17.94%	5.0-6.8	F-G
	3+7	Avaris / Quilt Azoxystrobin 7.0% + Propiconazole 11.7%	14.0-20.5	F
		Lucento Flutriafol 26.5% Bixafen 15.6%	3-5.5	

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Fungicide Efficacy for Management of Frogeye Leaf Spot

From the Disease Management Section of the 2020 Guide for Weed, Disease, and Insect Management and the North Central Regional Committee on Soybean Diseases NCERA-137

Fungicides			Rating				Rating
Class	Trade Name Active Ingredient (%)	Rate ¹ (per acre)					
3+11	Delaro Prothioconazole 16.0% + Trifloxystrobin 13.7%	7.0-11.0	G-VG	7+11	Priaxor Fluxapyroxad 14.33% + Pyraclostrobin 28.58%	4.0-8.0	P-F
	Evito T Fluoxastrobin 18.0% + Tebuconazole 25.0%	4.0-6.0			1+3	Topsin XTR2 Tebuconazole 7.5% + Thiophanate-methyl 37.5%	20
	Fortix / Preemptor Flutriafol 19.3% + Fluoxastrobin 14.84%	4.0-6.0	VG	3+7+11		Miravis Neo Propiconazole 11.6% Pydiflumetofen 7.0% Azoxystrobin 9.3%	13.7-20.8
	Quadris Top SB Azoxystrobin 18.2% + Difencconazole 11.4%	8.0-14.0			Priaxor D Component A Fluxapyroxad 14.33% + Pyraclostrobin 28.58%	4.0	G-VG
	Quadris Top SBX Azoxystrobin 19.8% + Difencconazole 19.8%	7.0-7.5	VG		Component B Tetraconazole 20.5%	4.0	
	Quadris Xtra Azoxystrobin 18.2% + Cyproconazole 7.3%	4.0-6.8			Revytek Mefentrifluconazole 11.61% Pyraclostrobin 15.49% Fluxapyroxad 7.74%	8-15	
	Quilt Xcel Azoxystrobin 13.5% + Propiconazole 11.7%	10.5-21.0	F		Trivapro Benzovindiflupyr 2.9% + Azoxystrobin 10.5% + Propiconazole 11.9%	13.7-20.7	G
	Stratego YLD Prothioconazole 10.8% + Trifloxystrobin 32.3%	4.0-4.65	F-G		Trivapro Co-Pack Trivapro A Benzovindiflupyr 10.27%	4.0	
	Topguard EQ Azoxystrobin 25.3% + Flutriafol 18.6%	5.0-7.0	G-VG		Trivapro B Azoxystrobin 13.5% + Propiconazole 11.7%	10.5	
	Veltima Mefentrifluconazole 17.56% Pyraclostrobin 17.56%	7-10					
	Zolera FX Fluoxastrobin 17.76% + Tetraconazole 17.76%	4.4-6.8	G-VG				

Get Help If Uncertain About Your Diagnosis!!!

Kyle Broderick, Diagnostician
Plant & Pest Diagnostic Clinic

Rm. 448 Plant Sciences Hall

University of Nebraska

Lincoln, NE 68583-0722

(402) 472-2559



Sample Submissions – Do's

- Send several whole plants, roots and all stages of the symptoms
- Include “normal” plants
- Enclose the root ball in a plastic bag separate from the leaf material
- Place entire sample into a plastic bag
- Provide as much information as possible
 - Crop growth stage
 - Symptom distribution
 - Description of the symptom
 - How many plants in area affected?
- Mail sample Monday through Wednesday



Sample Submission – DON'T

- DON'T Add water
 - If there is excess water with the sample add *dry* towels to absorb the moisture
- DON'T Leave sample on the dash of the pickup
 - Keep samples cool. Store in a refrigerator overnight/weekend if needed
- DON'T Place samples in paper bags (especially leaf samples)
- DON'T Mail Thursday or Friday







Plant & Pest Diagnostic Clinic
Specimen Identification Form
445 Plant Science Hall
Lincoln, NE 68583-0722

For Lab Use Only

Lab No. _____ Condition on arrival
 Excellent Good Fair Poor
 Cash Check No. _____
 Accr. _____ Date _____
 Called (Date & Initials) _____



Kyle Broderick,
Diagnostician



SUBMITTER

Name: _____
 Business Name: _____
 Address: _____
 City/State/Zip: _____
 Phone: _____ Cell: _____
 E-mail: _____

CLIENT

Name: _____
 Business Name: _____
 Address: _____
 City/State/Zip: _____
 Phone: _____ Cell: _____
 E-mail: _____

Services Requested:

Plant ID Plant Disease
 Insect Chemical Injury
 Weed ID Other Unknown

Example Fee:

Perform only basic diagnosis (\$10.00)
 Please notify if advance analysis is needed (over \$10.00)
 Perform advance testing needed (up to \$70.00)

Make checks payable to "University of Nebraska"

Crop or Plant: _____ **Variety/Cultivar:** _____ **Symptoms developed in:** _____ Days _____ Weeks _____ Months _____
 Date collected: _____ **County of Origin:** _____ **Occurred in previous years:** _____
Turfgrass: Year established: _____ Sod Seed Plugs
Trees/shrubs/ornamentals: Approx age _____ Height _____ Number of years at site: _____

Location	Incidence	Symptoms	Parts Affected	Distribution	Field History
<input type="checkbox"/> Field	_____ Acres	<input type="checkbox"/> Abnormal growth	<input type="checkbox"/> Branches _____ %	<input type="checkbox"/> Certain variety	Soil pH: _____
<input type="checkbox"/> Pasture	_____ Sq. ft	<input type="checkbox"/> Dead areas	<input type="checkbox"/> Entire plant _____ %	<input type="checkbox"/> Edge of planting	Soil Drainage: _____
<input type="checkbox"/> Nursery Orchard	_____ Sq. ft	<input type="checkbox"/> Dieback	<input type="checkbox"/> Flowers	<input type="checkbox"/> General	<input type="checkbox"/> Good
<input type="checkbox"/> Golf Course	_____ % of area	<input type="checkbox"/> Leaf spot	<input type="checkbox"/> Fruits/seeds	<input type="checkbox"/> High areas	<input type="checkbox"/> Poor
<input type="checkbox"/> Lawns/Turfgrass	_____ % of area	<input type="checkbox"/> Leaf spot	<input type="checkbox"/> Leaves _____ %	<input type="checkbox"/> Low areas	Previous Crop
<input type="checkbox"/> Landscape	_____ -0-	<input type="checkbox"/> Red	<input type="checkbox"/> Roots	<input type="checkbox"/> Scattered	Yr 1: _____
<input type="checkbox"/> Garden	_____ % of plant	<input type="checkbox"/> Stunted	<input type="checkbox"/> Stems	<input type="checkbox"/> Shaded areas	Yr 2: _____
<input type="checkbox"/> Home-Structural	_____ % of plant	<input type="checkbox"/> Wilting	<input type="checkbox"/> Trunk	<input type="checkbox"/> Spots	Yr 3: _____
<input type="checkbox"/> Other:	_____ % of plant	<input type="checkbox"/> Yellowed	<input type="checkbox"/> Other:	<input type="checkbox"/> Sunny areas	
		<input type="checkbox"/> Other:		<input type="checkbox"/> Wet areas	
				<input type="checkbox"/> Other:	


Planting date: _____ **Irrigated:** Yes No

Chemical history: Please provide chemical name, application dates, and rates:
 Fertilizer: _____
 Seed treatment: _____
 Herbicide: _____
 Fungicide: _____
 Insecticide: _____

Tillage: _____ **Irrigated:** Yes No

Please describe problem. Include any details not covered above. Attach photos if possible. (Please use reverse side for more space)

Available on-line at:
<https://cropwatch.unl.edu/plantdisease/unl-diagnostic-clinic-lincoln>

 @UNLPlantClinic



Crop Disease Resources

- 
 - Crop Watch - <http://cropwatch.unl.edu/>
 - Newsletter, efficacy trial data, and publications
- 
 - Market Journal – weekly episode or see videos at: <http://marketjournal.unl.edu/soybeandiseases>
- 
 - Videos – YouTube – UNL CropWatch channel
 - short Corn/Soybean Disease videos
- 
 - Crop Protection Network <http://cropprotectionnetwork.org>
- 
 - Tamra Jackson-Ziems - @tjcksn
 - Contact local county Extension office

QUIZ TIME!

- We'll use Kahoot! for quizzes today.
- Go to the link or scan the **QR code** to enter the quiz (game) PIN
- <https://go.unl.edu/downloadkahoot>
- We'll provide the "Game PIN" to start
- Or you can download the Kahoot! App (free version) to your smartphone or other device



Using Kahoot!

- Go to: <https://go.unl.edu/downloadkahoot>
- Use the code on the screen to open the quiz
- Enter a name or nickname - will be visible to others
- Question and multiple choice answers on screen
- On your device, touch the colored symbol corresponding with the correct answer – read all answers
- You have 10 seconds per question
- Scores based on correct answer and time to respond
- Prizes for the highest scorers!