# Upcoming Crop Diseases & Control Methods

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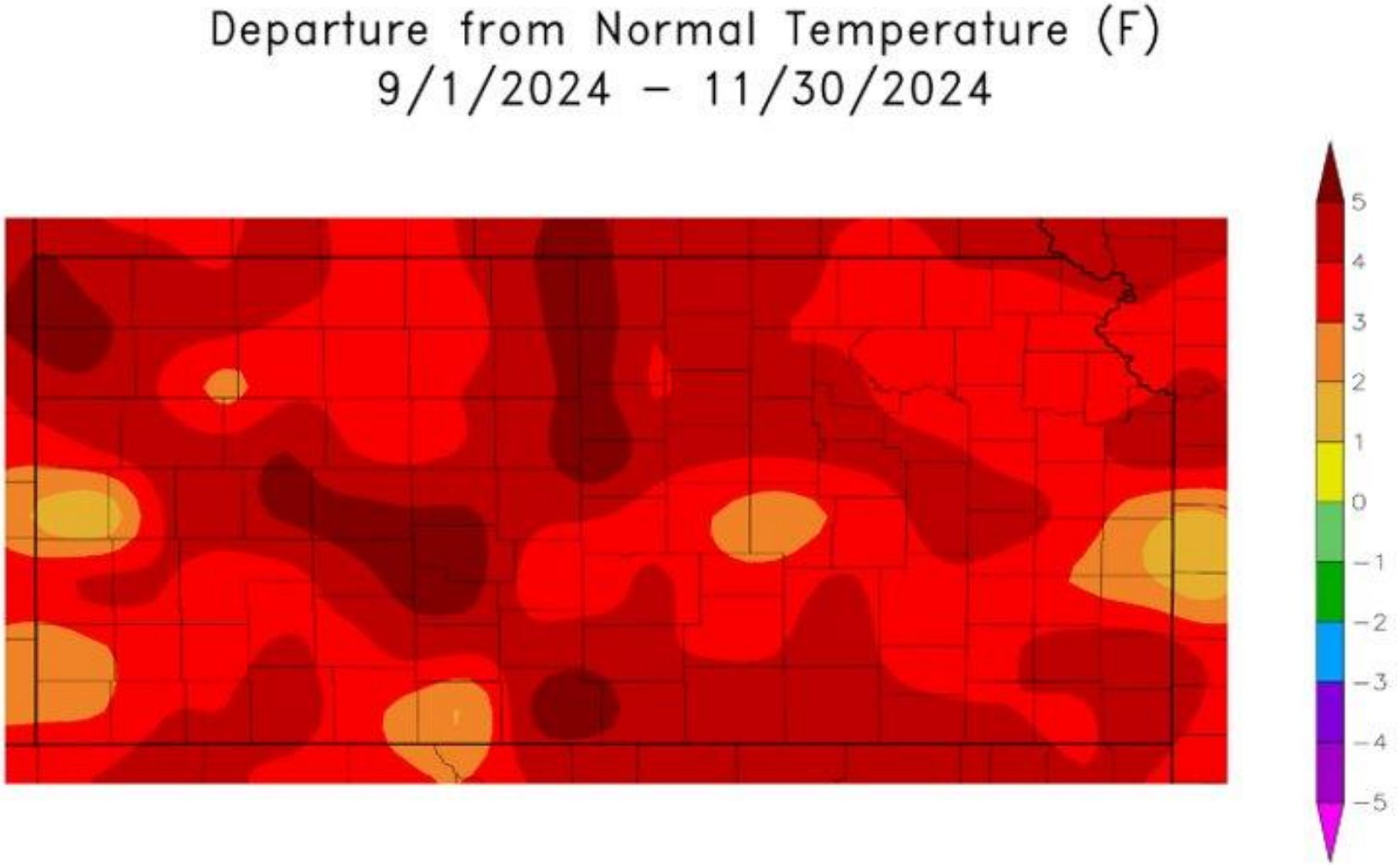
# Cover Topics

- Wheat Problems
  - Wheat Streak Mosaic
- Corn Problems
  - Tar Spot
  - Corn Leaf Hopper & Corn Leaf Stunt Complex

# Departure from Normal Temperatures

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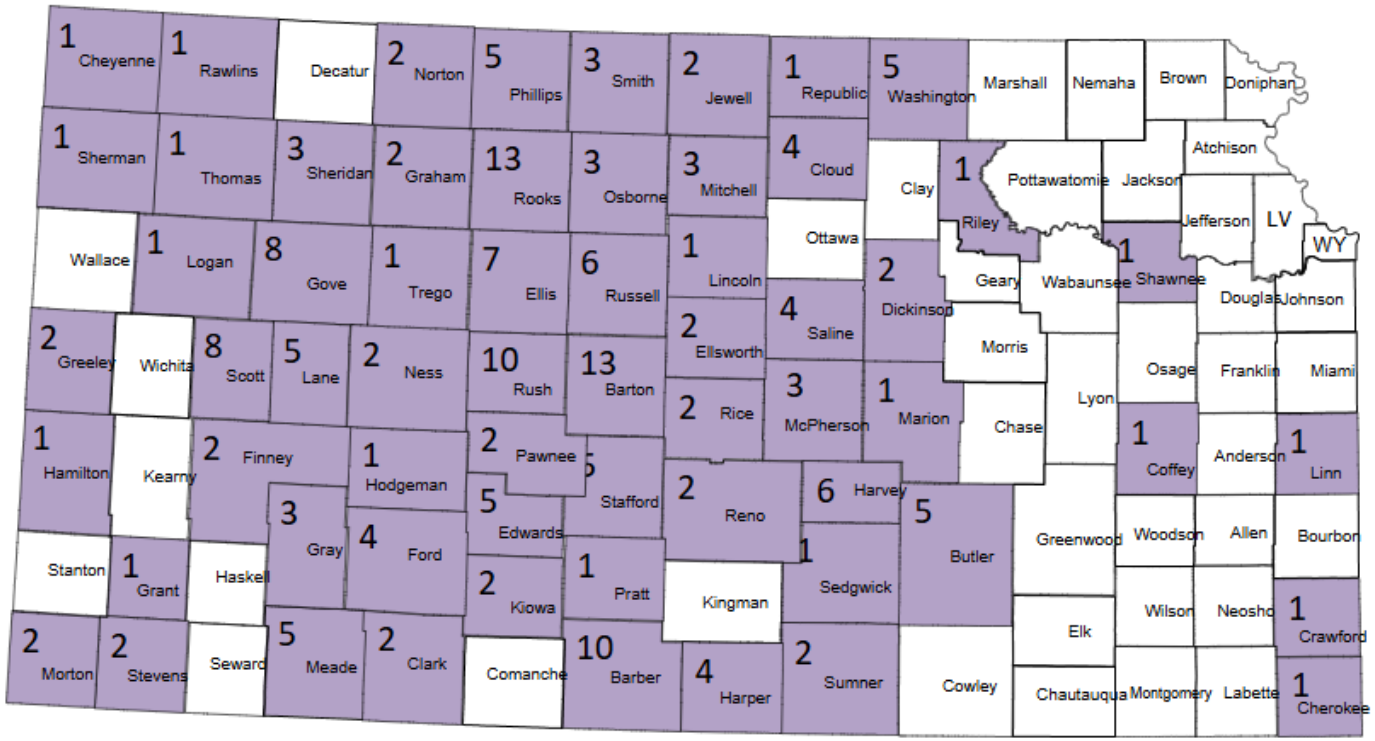
# Last Season…

## Diagnostic Lab Samples: Wheat Streak Mosaic Virus

202 positives in 62 counties in 24/25 growing season*




Detected

*data shown is from the K-State Plant Disease Diagnostic Lab and only represents samples submitted to the lab that tested positive

Map Credit: Chandler Day

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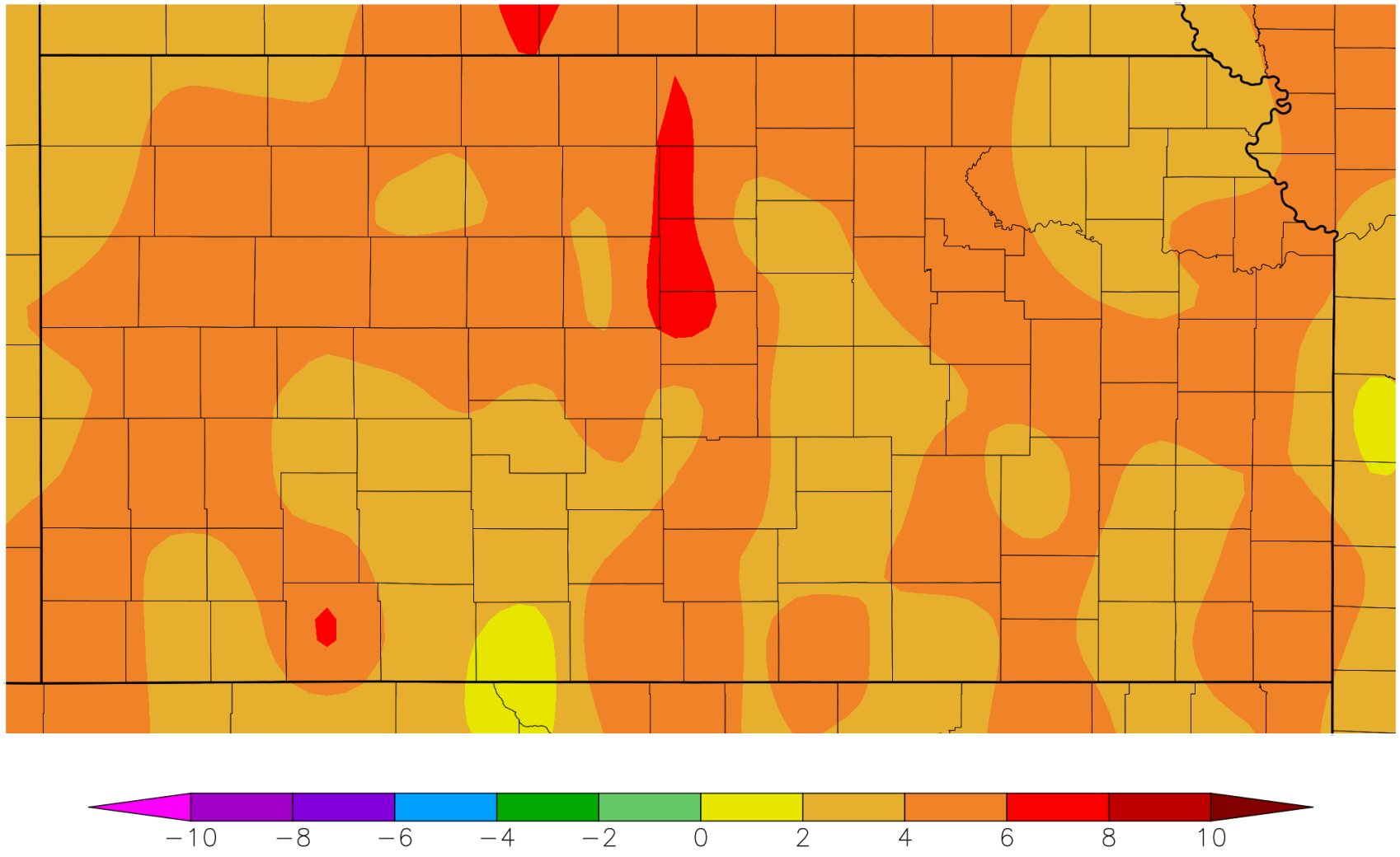
# Departure from Normal Temperature (F)
# 9/2/2025 - 11/30/2025




Generated 12/1/2025 using provisional data.

ACIS Web Services

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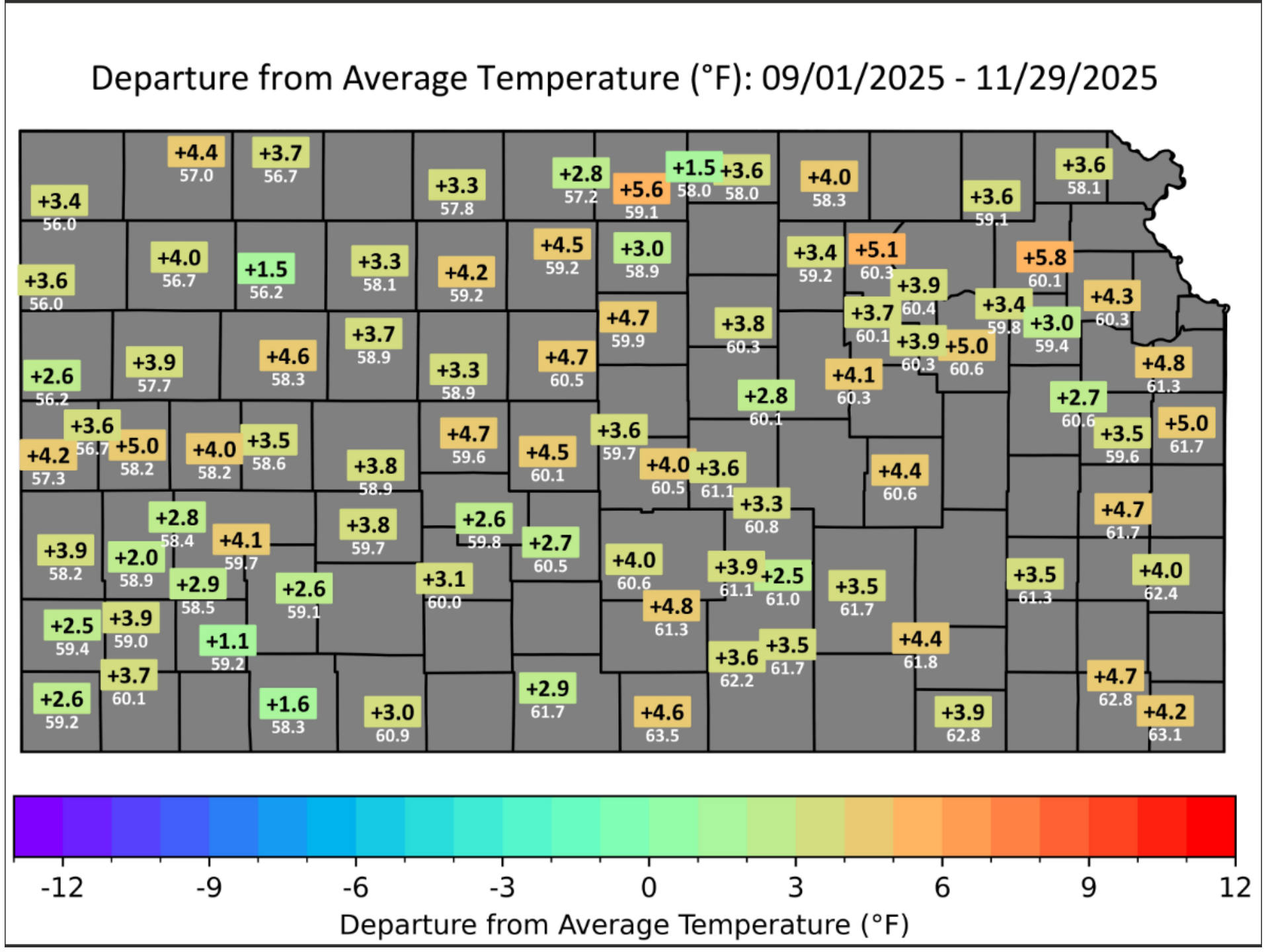
Departure from Average Temperature (°F): 09/01/2025 - 11/29/2025
+3.4 56.0
+4.4 57.0
+3.7 56.7
+3.3 57.8
+2.8 57.2
+5.6 59.1
+1.5 58.0
+3.6 58.0
+4.0 58.3
+3.6 59.1
+3.6 58.1
+3.6 56.0
+4.0 56.7
+1.5 56.2
+3.3 58.1
+4.2 59.2
+4.5 59.2
+3.0 58.9
+3.4 59.2
+5.1 60.3
+5.8 60.1
+3.9 60.4
+3.4 59.8
+4.3 60.3
+3.7 60.1
+3.9 60.3
+5.0 60.6
+3.0 59.4
+4.7 59.9
+3.8 60.3
+2.6 56.2
+3.9 57.7
+4.6 58.3
+3.7 58.9
+3.3 58.9
+4.7 60.5
+4.1 60.3
+4.8 61.3
+2.8 60.1
+2.7 60.6
+3.6 56.7
+4.2 57.3
+5.0 58.2
+4.0 58.2
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+3.9 61.1
+2.5 61.0
+3.5 61.7
+3.5 61.3
+4.0 62.4
+2.5 59.4
+3.9 59.0
+1.1 59.2
+4.8 61.3
+3.6 62.2
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+2.6 59.2
+1.6 58.3
+3.0 60.9
+2.9 61.7
+4.6 63.5
+3.9 62.8
+4.7 62.8
+4.2 63.1
-12
-9
-6
-3
0
3
6
9
12
Departure from Average Temperature (°F)

# Color Banding…

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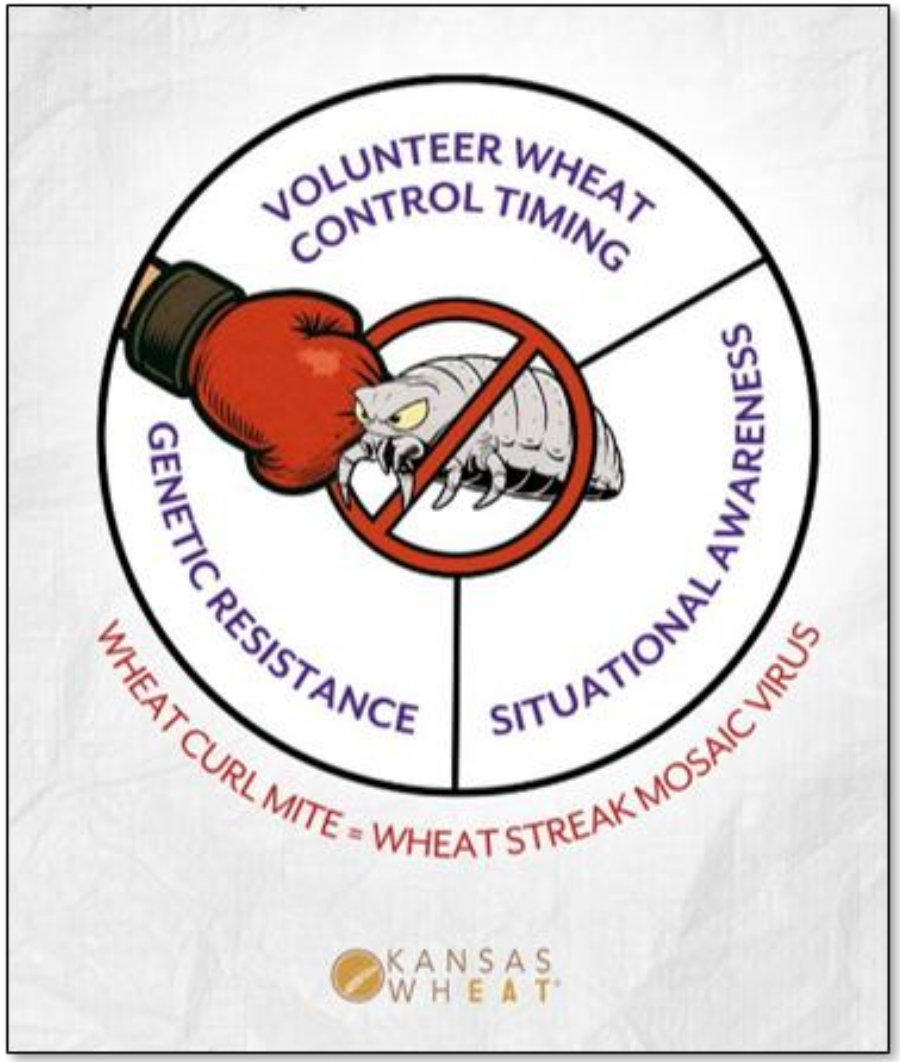
# Wheat Streak Complex…. Fight the Mite!

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# What Wheat Streak Complex Looks Like

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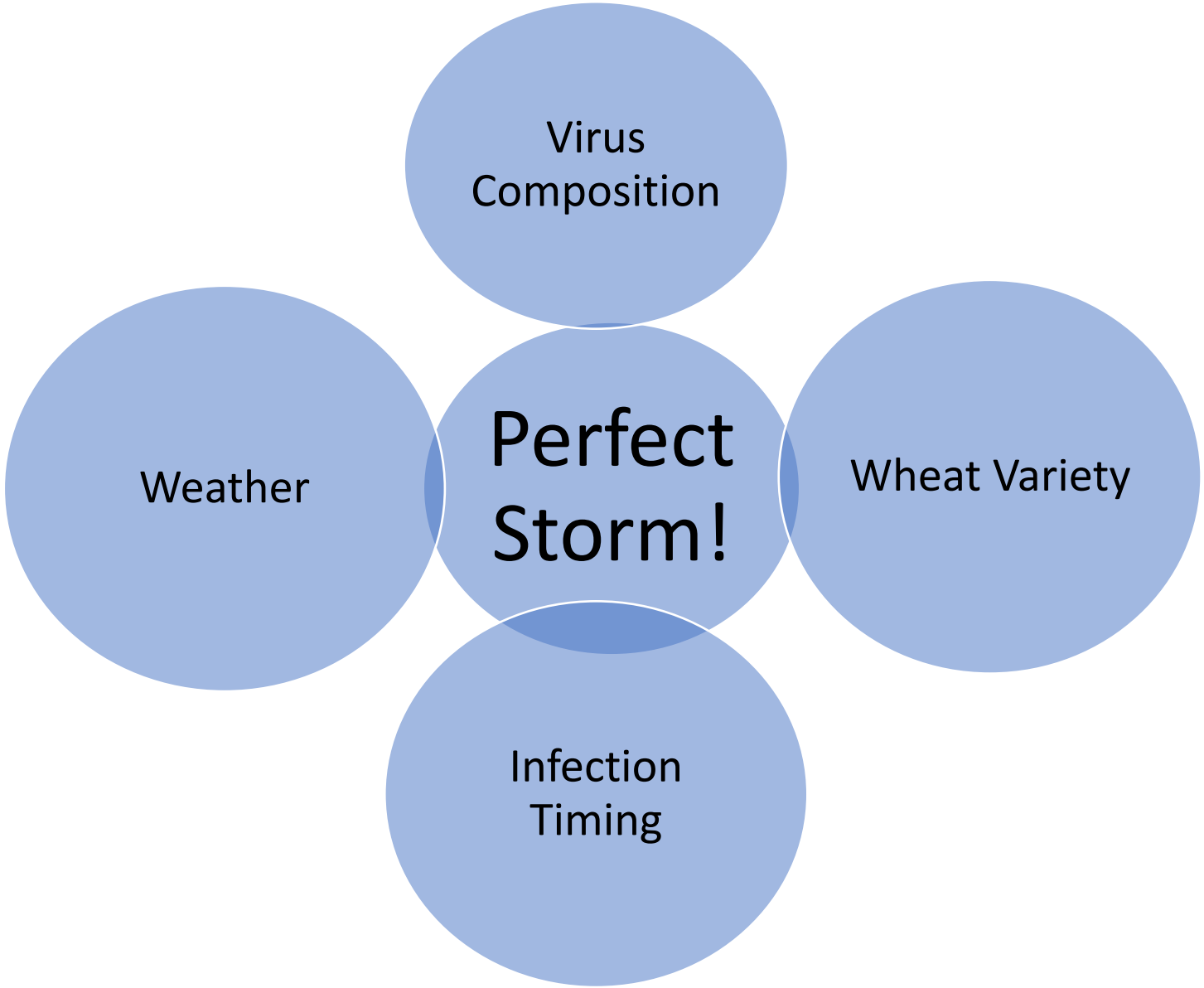
# The Wheat Streak Complex

- Wheat streak mosaic virus (WSMV)
- Triticum mosaic virus (TriMV)
- High Plains wheat mosaic virus (HPWMoV)

# Factors Determining Severity

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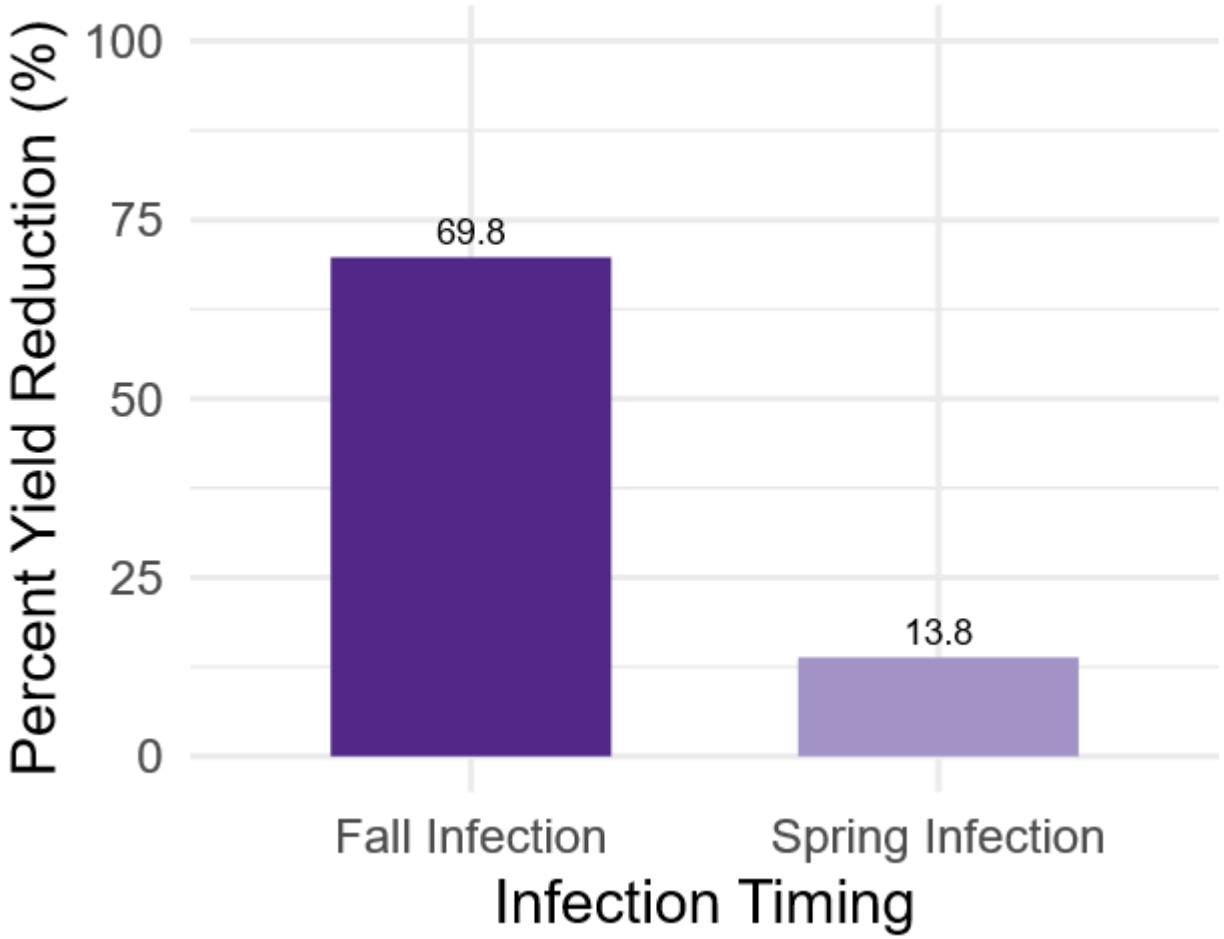
# Fall infections typically do not show symptoms until the spring

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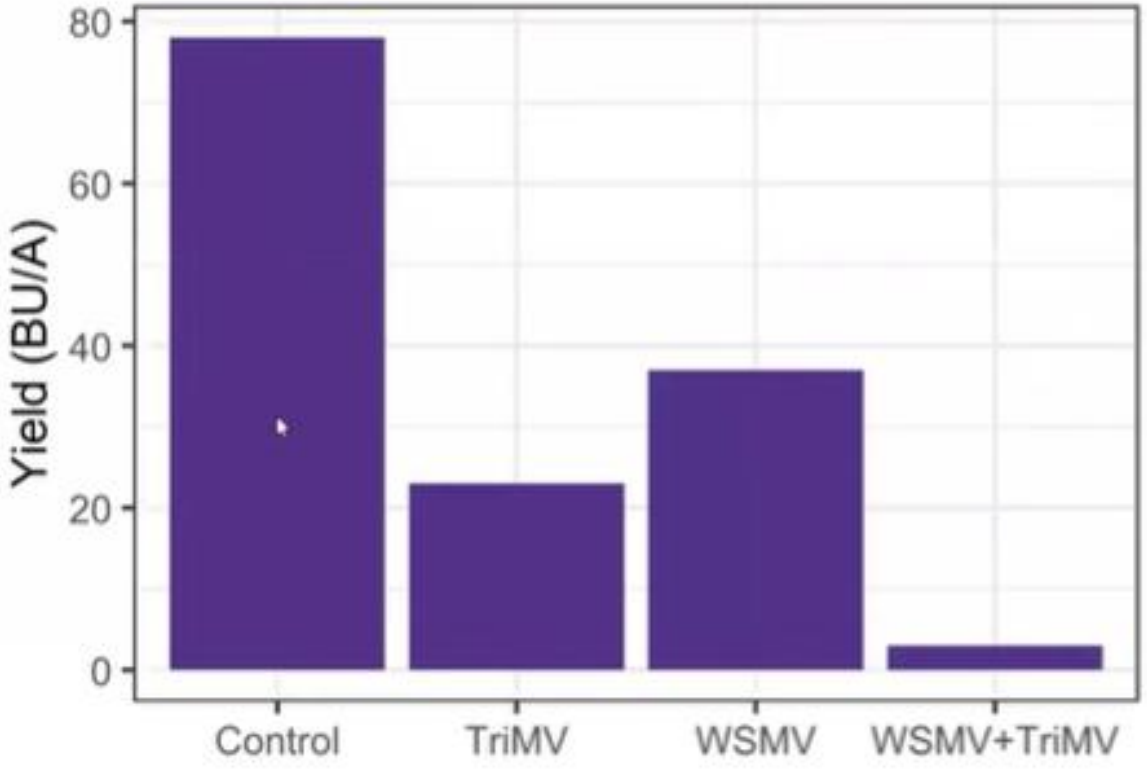
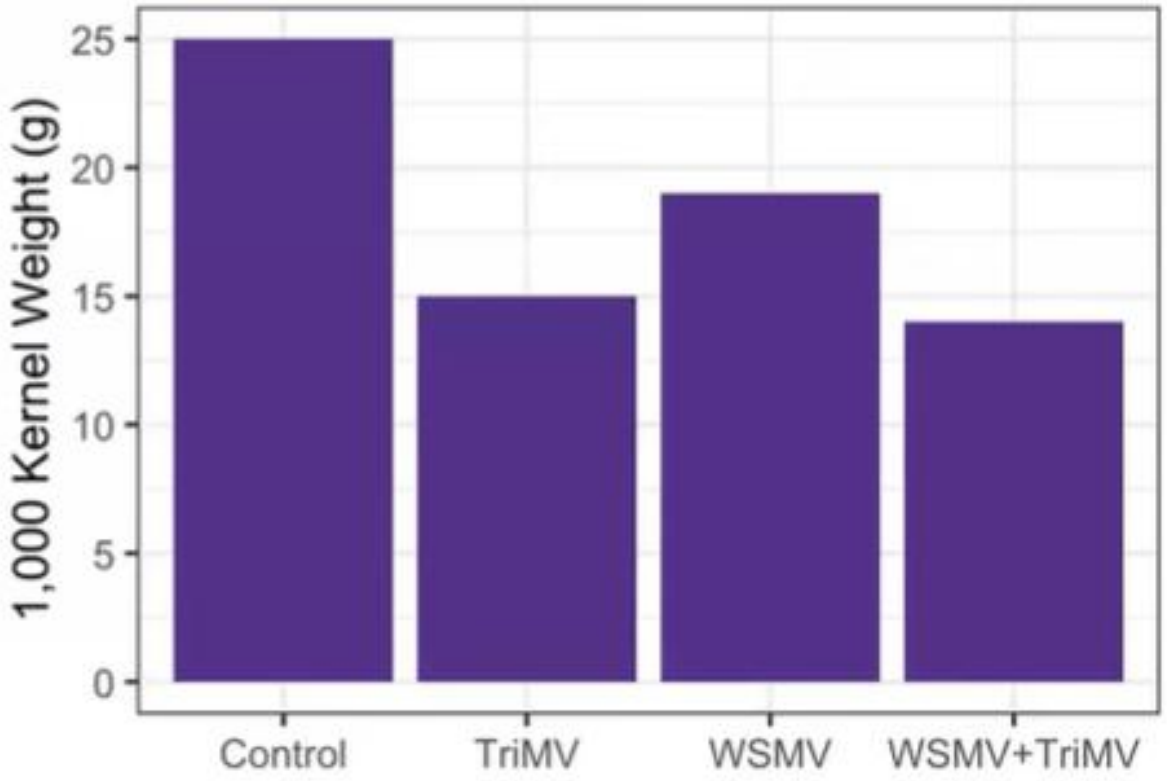
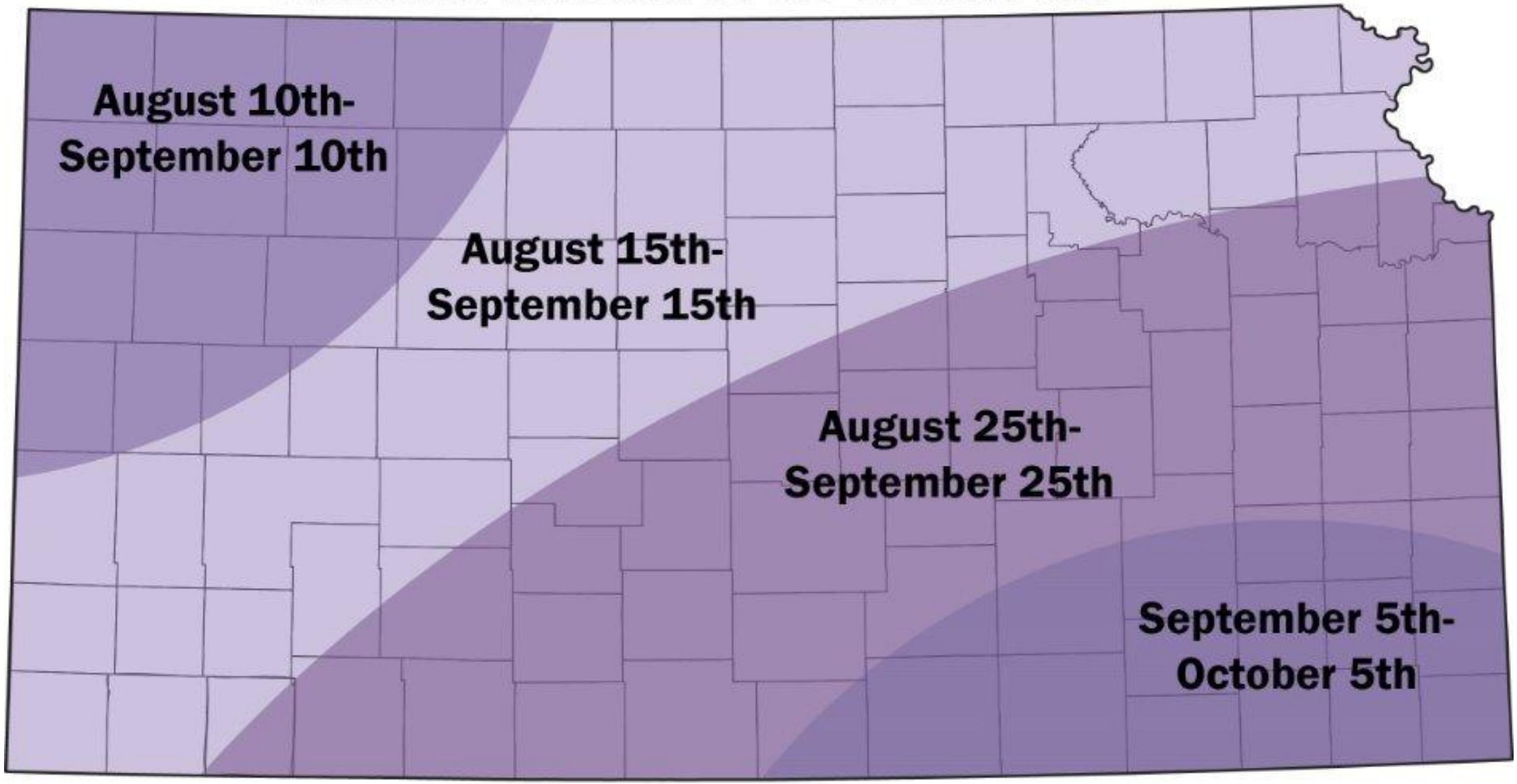
# More Disease = More Loss



# Kansas Wheat-Free Windows

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# Varieties with Resistance

***WSM2***

- ***Hard red winter wheat:***
  - KS Territory KS Mako
  - KS Bill Snyder KS Dallas
  - KS Hamilton Guardian
  - Oakley CL
- ***Hard white winter wheat:***
  - KS Big Bow Joe

**Curl Mite Resistance**

- Guardian Canvas
- Kivari AX KS Western Star
- Crescent AX Incline AX
- TAM 115 TAM 204
- TAM 112 T158
- Byrd Avery
- Whistler Fortify SF
- Langin

# Warmer Fall… Leaf Rust?

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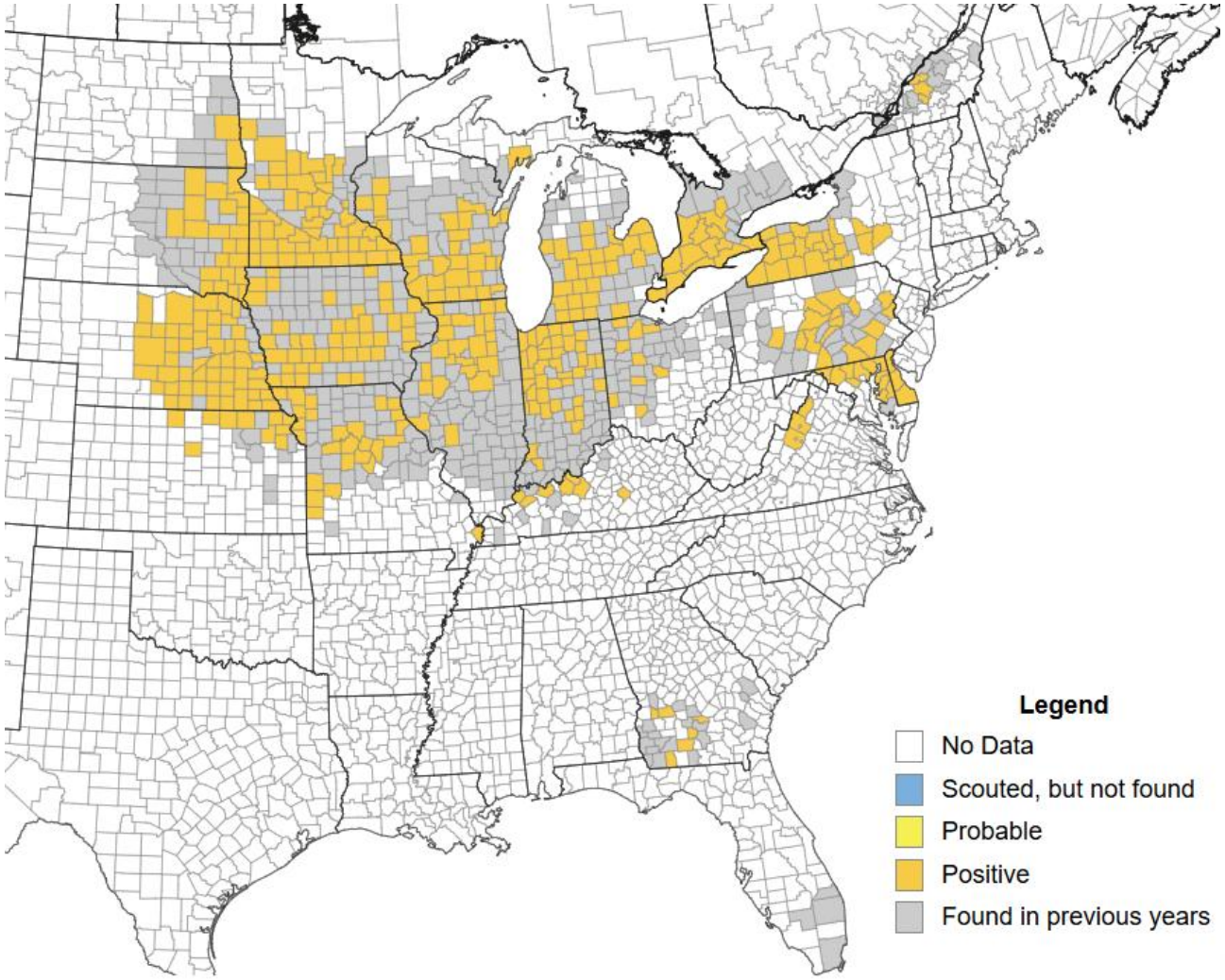
# Tar Spot… Not Fully in Southeast… Yet

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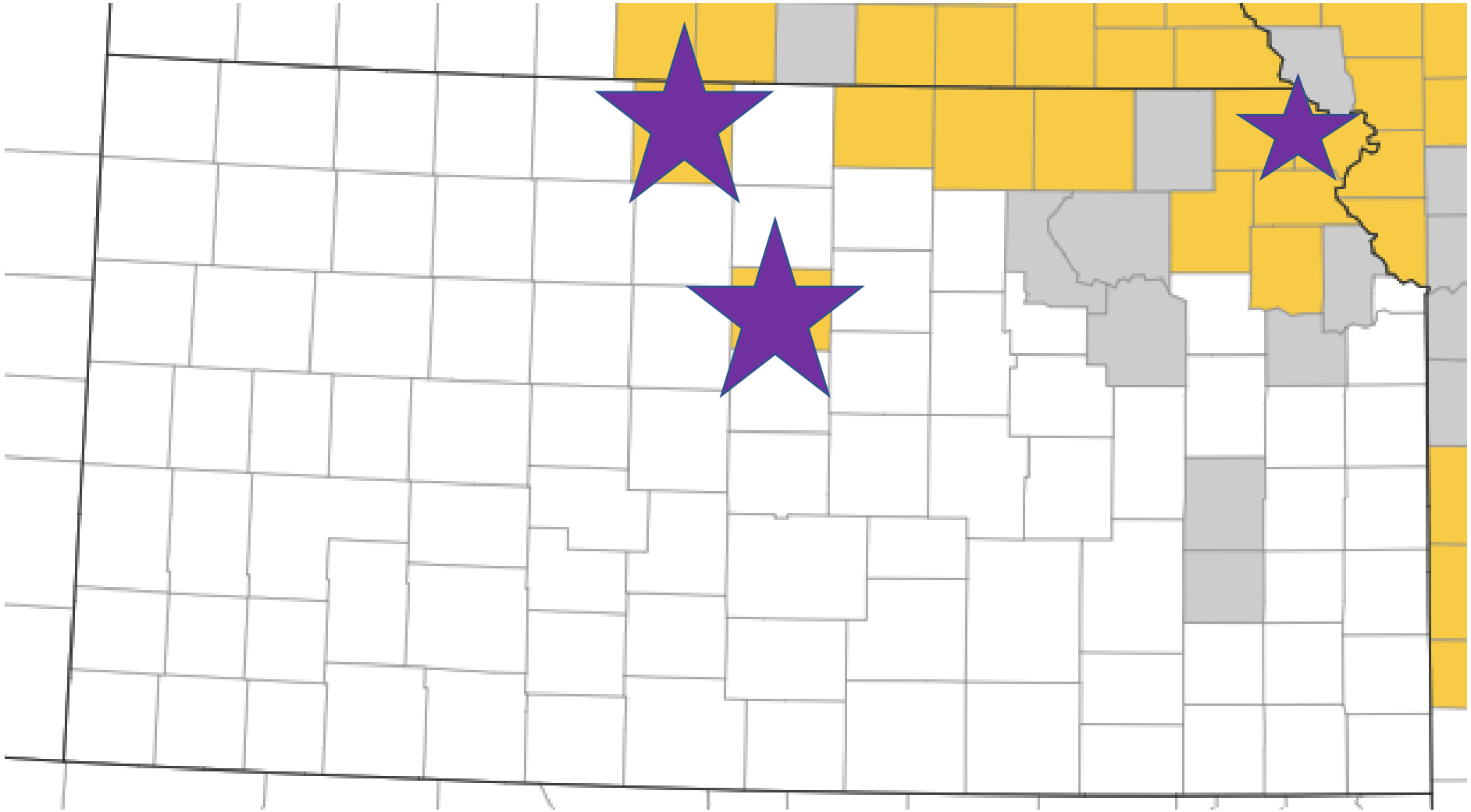
# Where is it – end of 2025 Season



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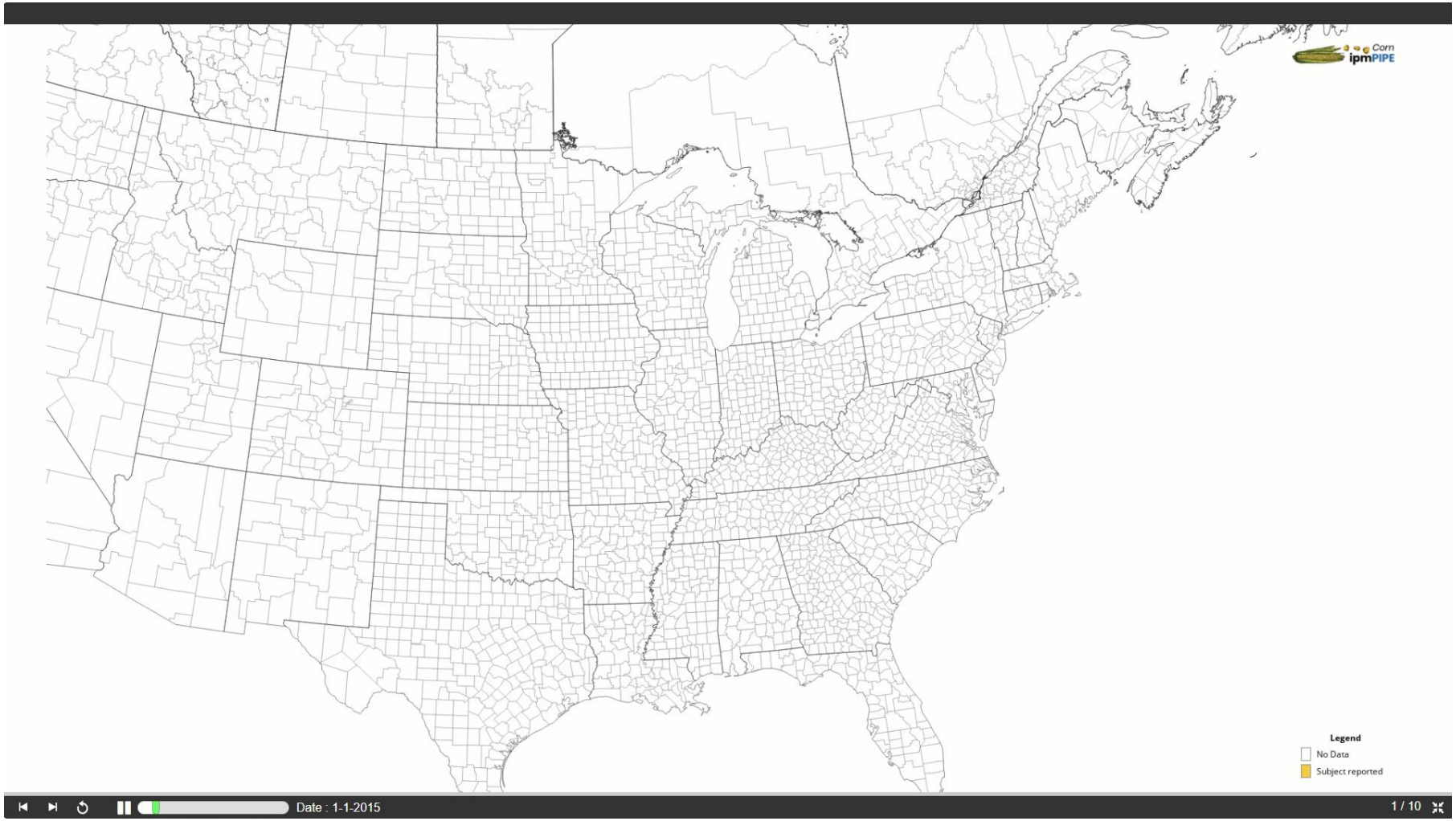
# Movement since 2015

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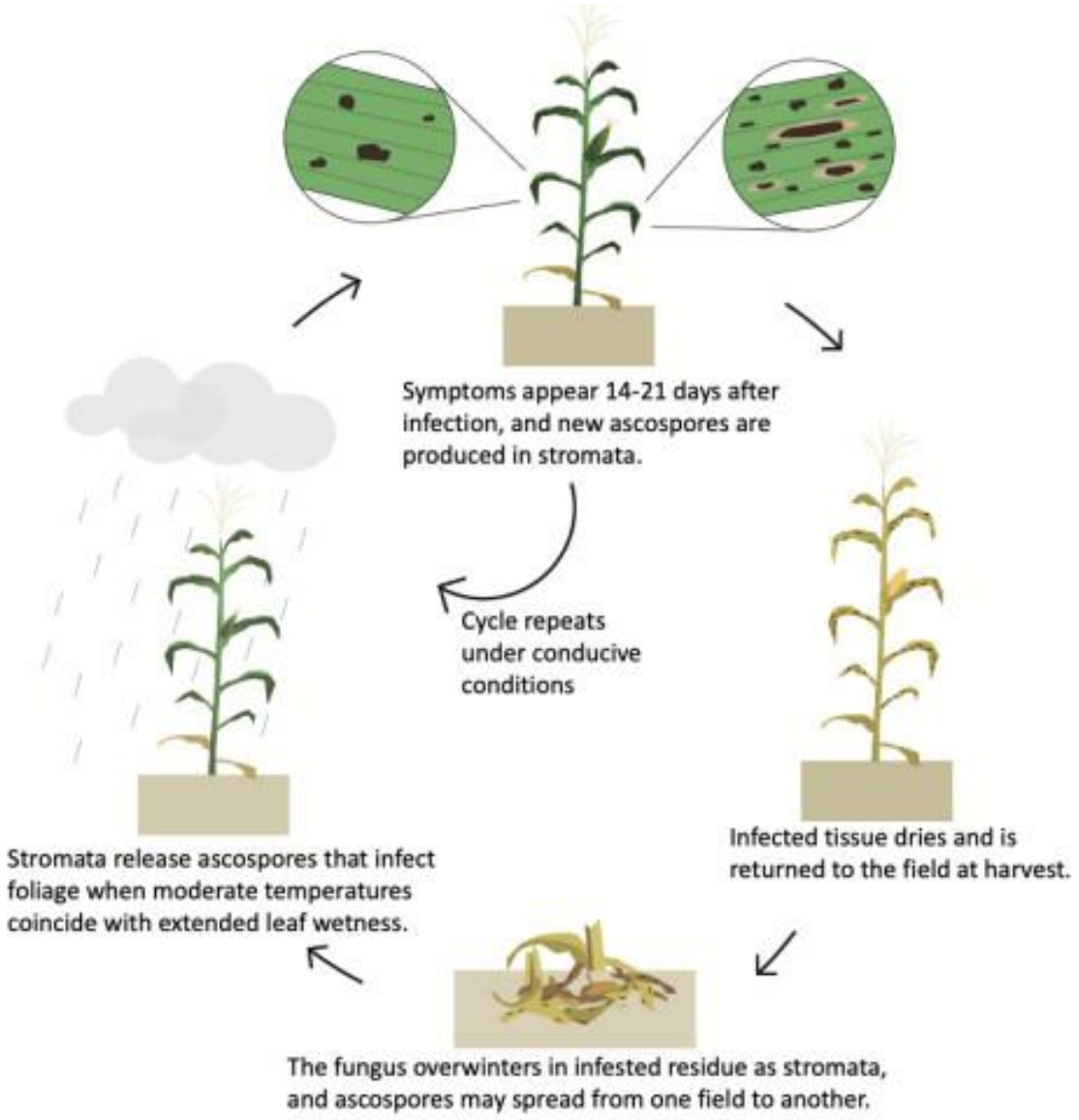
# The Fungal Disease: *Phyllachora maydis*




- Extended periods (**30 days**) of mild temperatures (**64-73°F**).
- > 73°F reduce tar spot progression
- Relative humidity **under 90%** over a **2-3-week span**. Extended periods of RH > 90%, especially at higher temperatures, can hold back disease progression (Webster et al. 2023)
- Tar spot lesions takes **14 to 21 days** after infection to appear
- **TAR SPOT SURVIVES IN CORN RESIDUE**

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# Lesions can be on any green part

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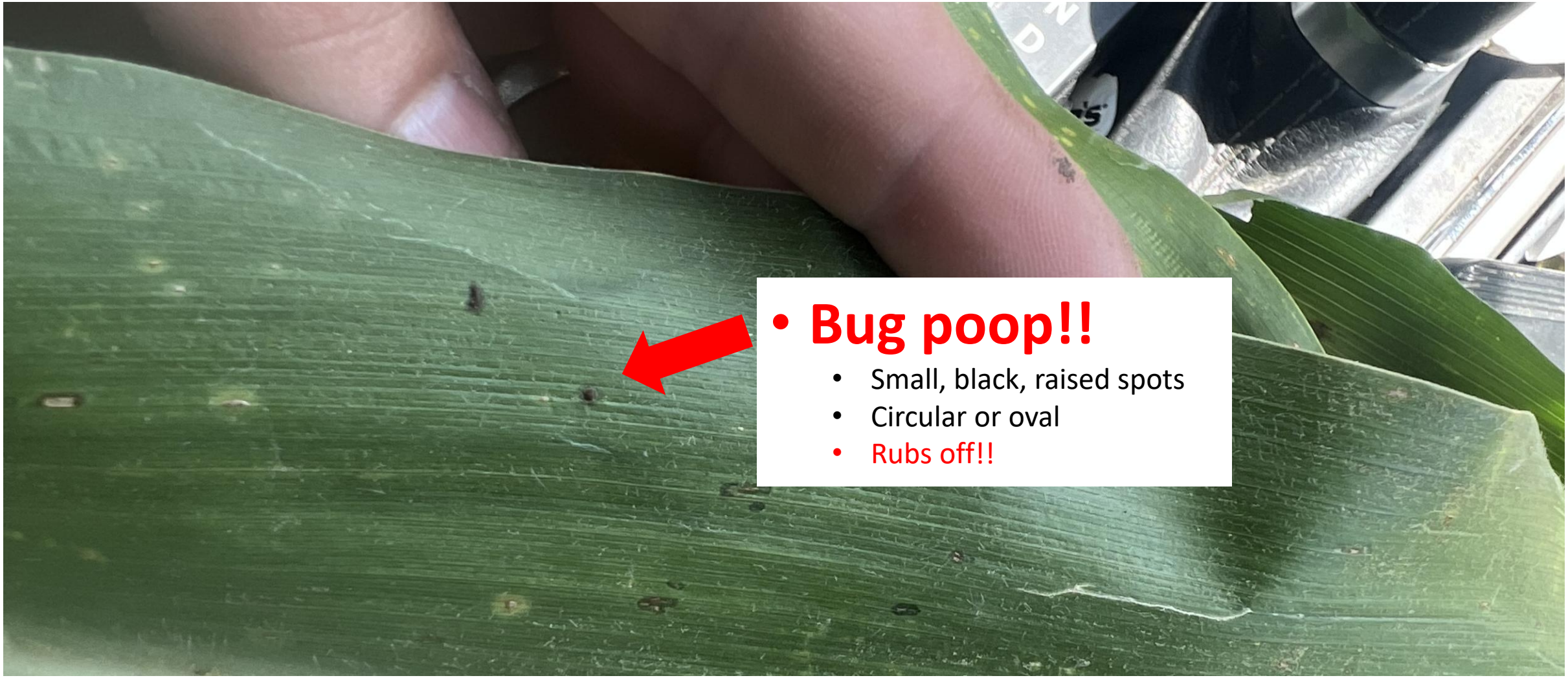
# The Look Alike….



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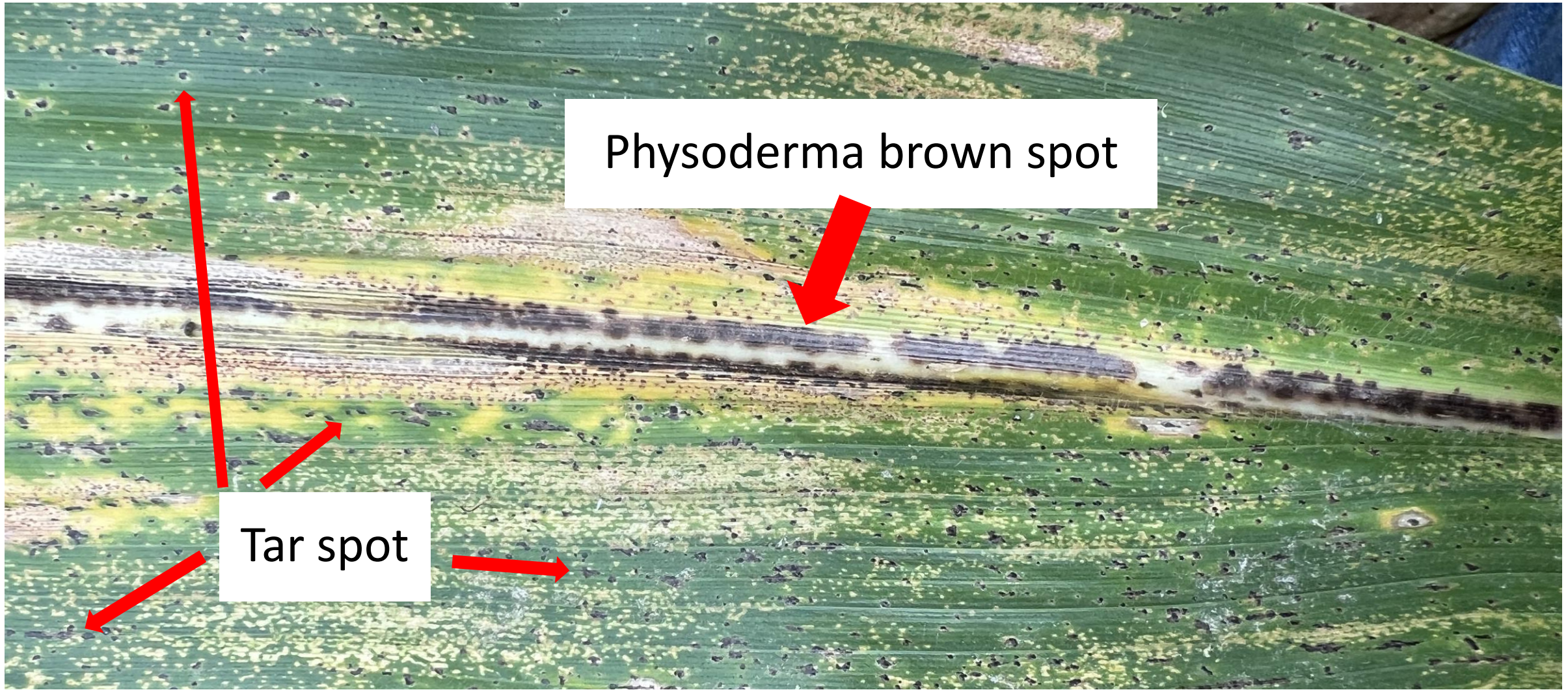

# The Look Alike….

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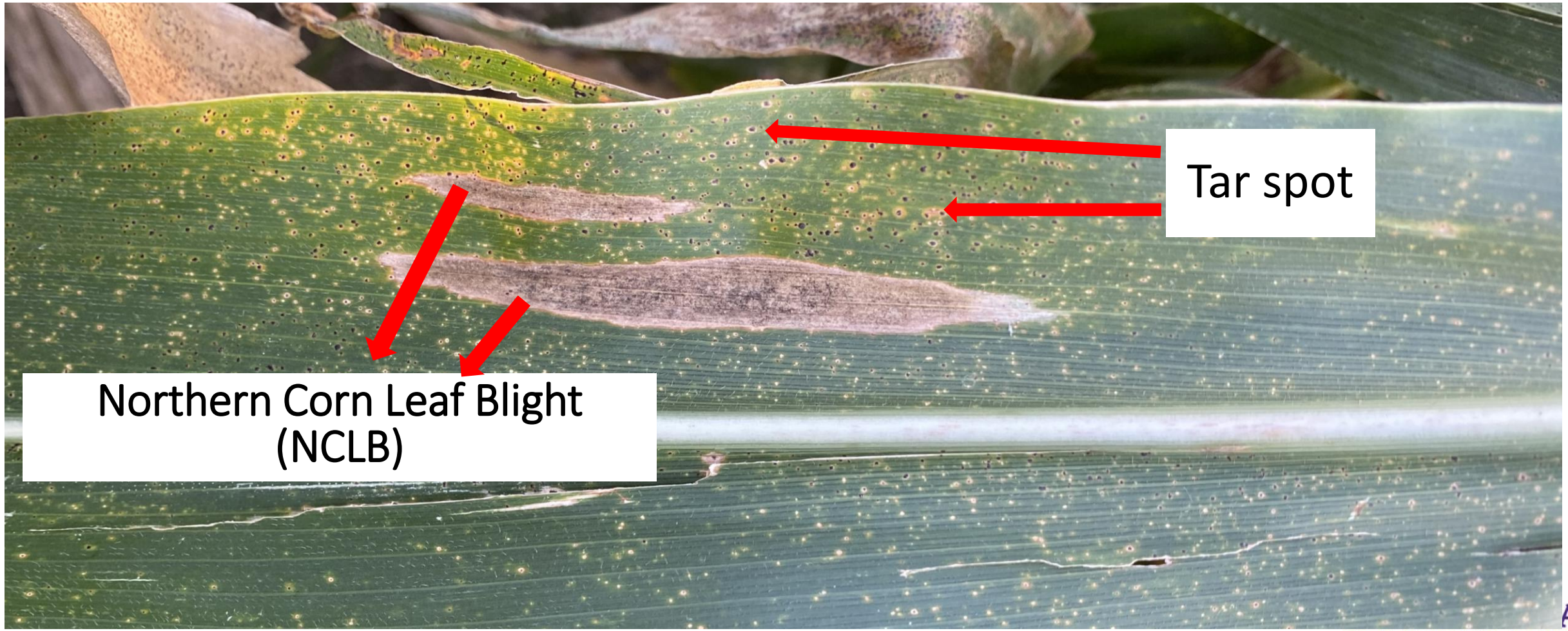
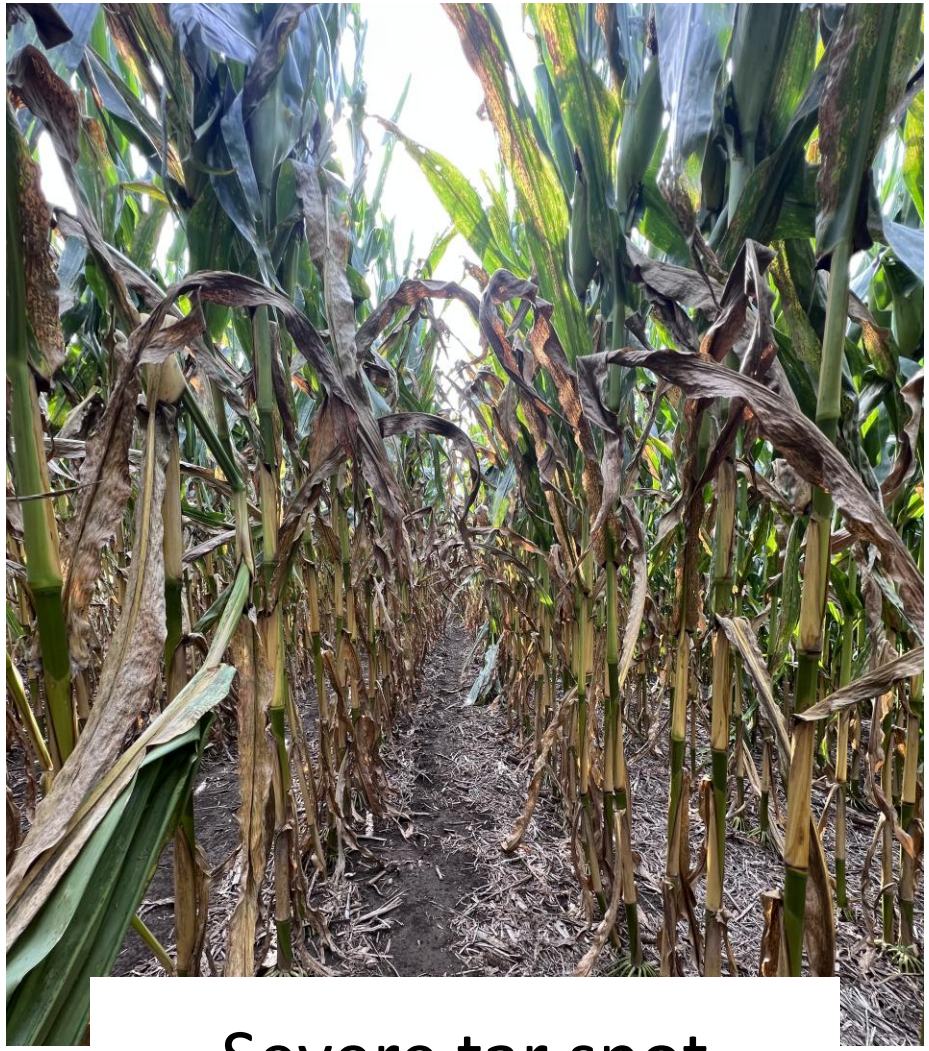
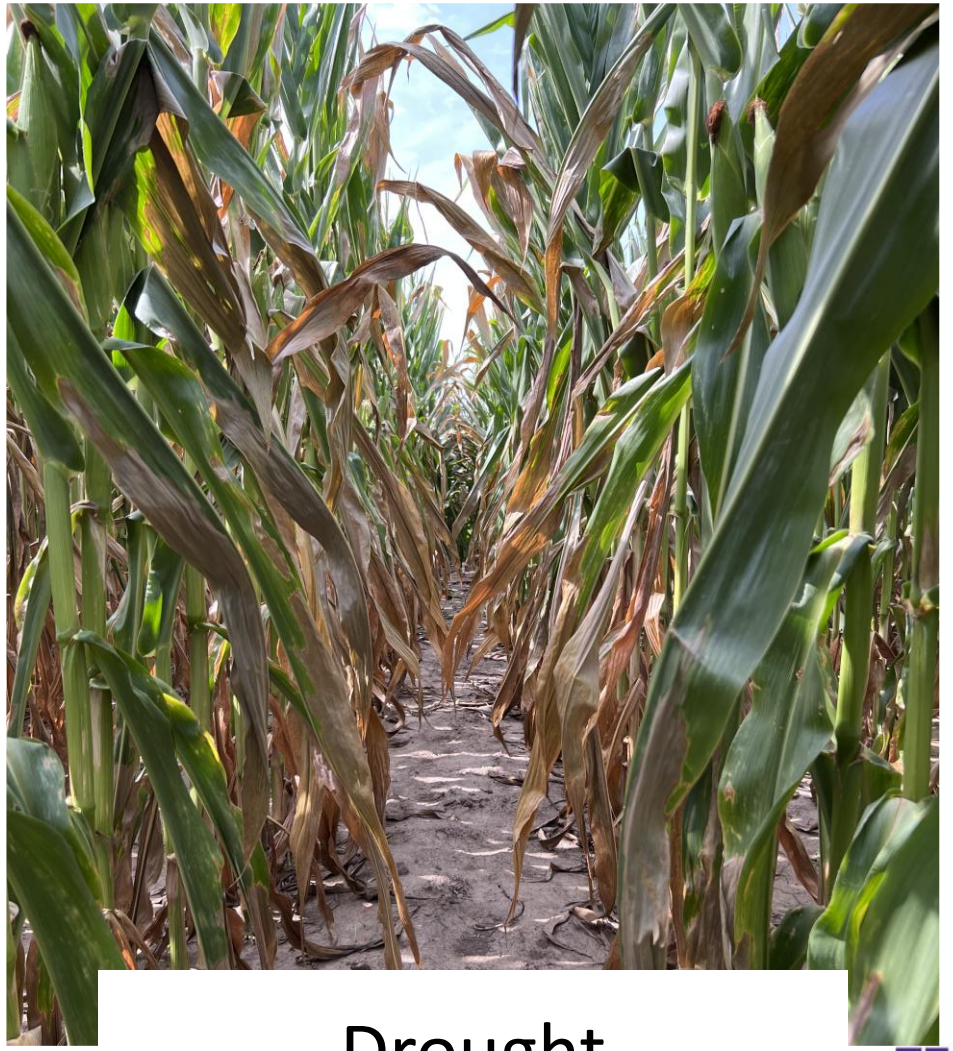


# The Look Alike

# Fast Progression



Severe tar spot



Drought

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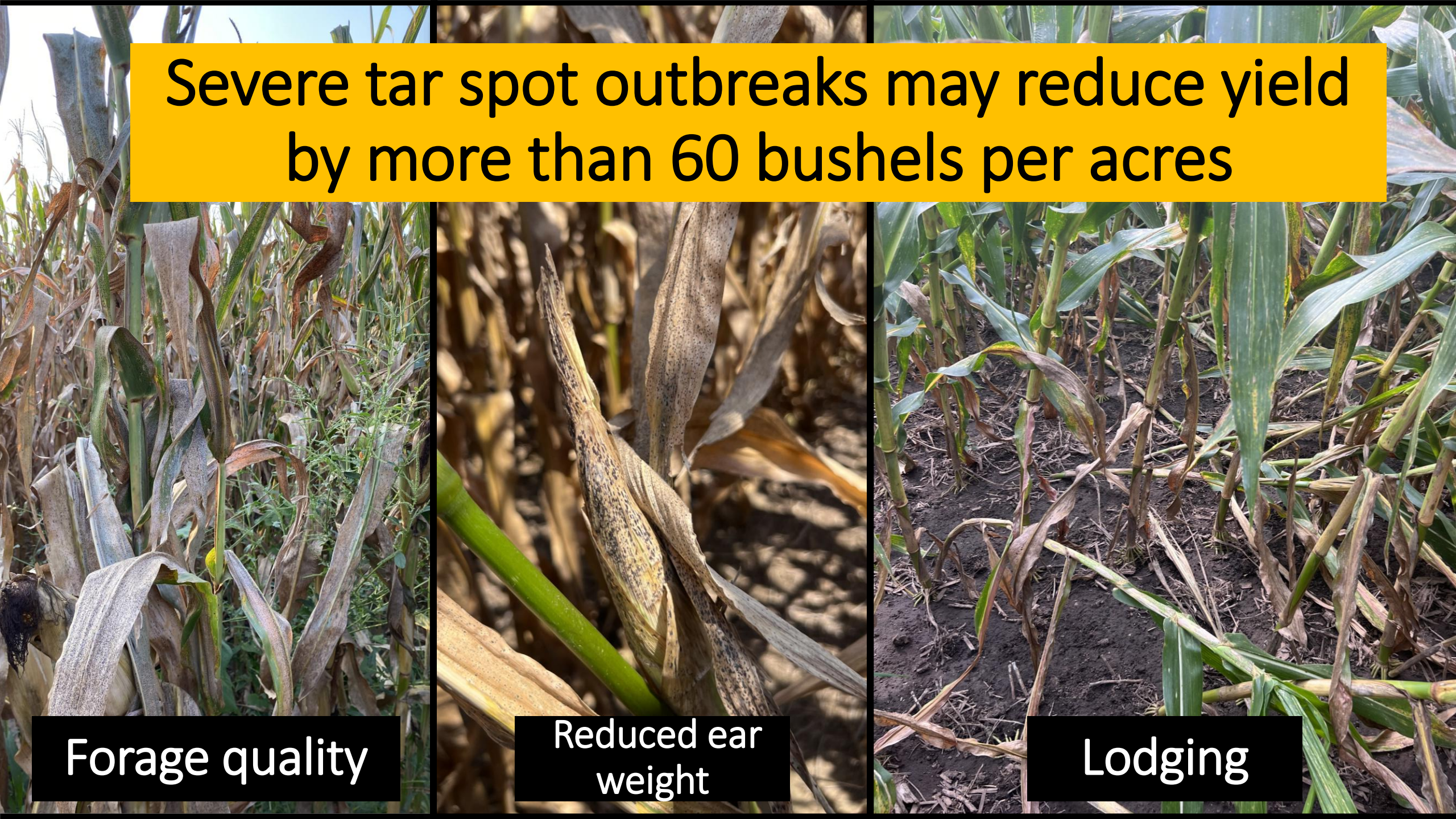
# Severe tar spot outbreaks may reduce yield by more than 60 bushels per acres



# Fungicides for Tar Spot… and Southern Rust

- Group 11 – Approach 2.08 SC (Good)
- Group 7/11/3 - Trivapro 2.21 SE (Good/V.Good/Excellent)
- Group 3/11 - Aproach Prima 2.34 SC (Good/V.Good)
- Group 3/11 - Fortix 3.22 SC (Good/V.Good)
- Group 3/11 - Preemptor 3.22 SC(Good/V.Good)

- Plus more…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# The Corn Leaf Hopper

***Not all leafhoppers are corn leafhoppers***

**Corn Leafhopper**

**Aster Leafhopper**

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# *Not all leafhoppers are corn leafhoppers*

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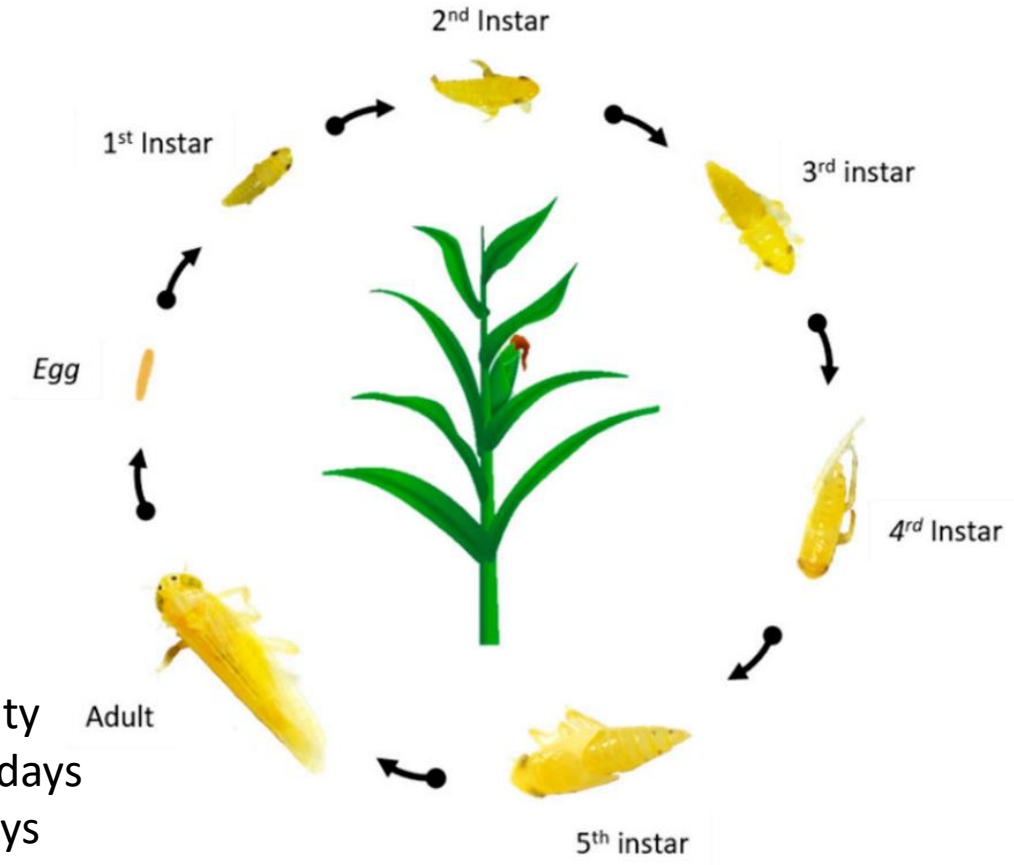
# Corn Leaf Hopper Lifecycle

- Incomplete metamorphosis
- Eggs laid inside host leaf tissue
- Nymphal instars resemble adults, but are wingless
- Shed exoskeleton as they grow through 5 instars
- All stages cause damage




Adult longevity
Female: ~30 days
Male: ~78 days

Tara-Kay Lencola Jones
Texas A&M University

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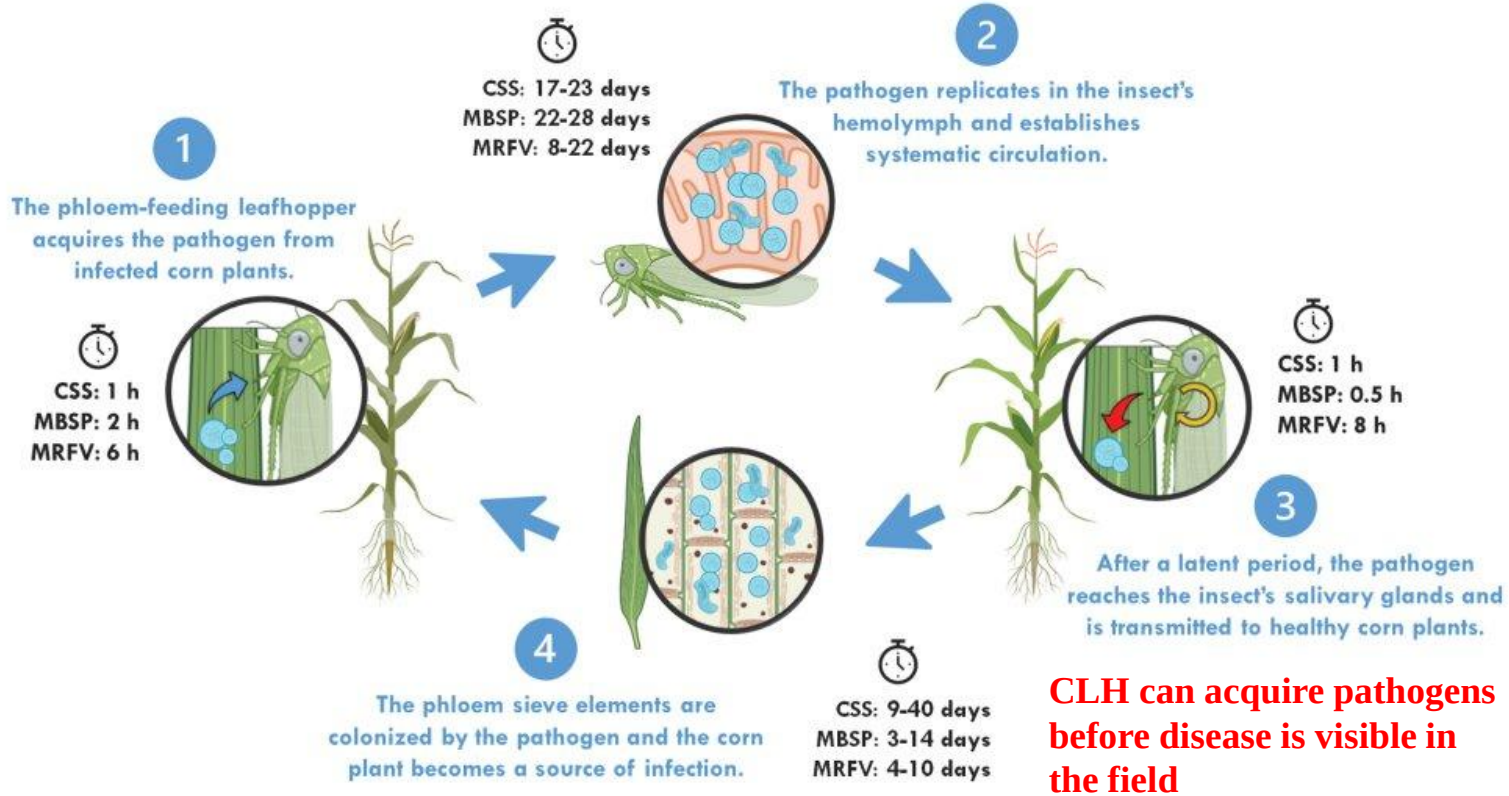
# Transmission Cycle




**CLH can acquire pathogens before disease is visible in the field**

**Fig. 7.** Transmission cycle of corn stunt disease. *Dalbulus maidis* acquire pathogens (corn stunt spiroplasma (CSS), maize bushy stunt phytoplasma (MBSP), and maize rayado fino virus (MRFV)) from infected corn tissues. Pathogens go through a latent/incubation period in which they replicate within the insect, after which they are inoculated into healthy seedlings by *D. maidis* feeding. The average periods necessary for each stage (acquisition, incubation in the vector, inoculation, and incubation in the plant) are indicated. CSS, MBPS, and MRVP can be retained throughout *D. maidis* lifetime. The color, size, and shape of the organisms are stylized. Figure created using Biorender (https://biorender.com/).

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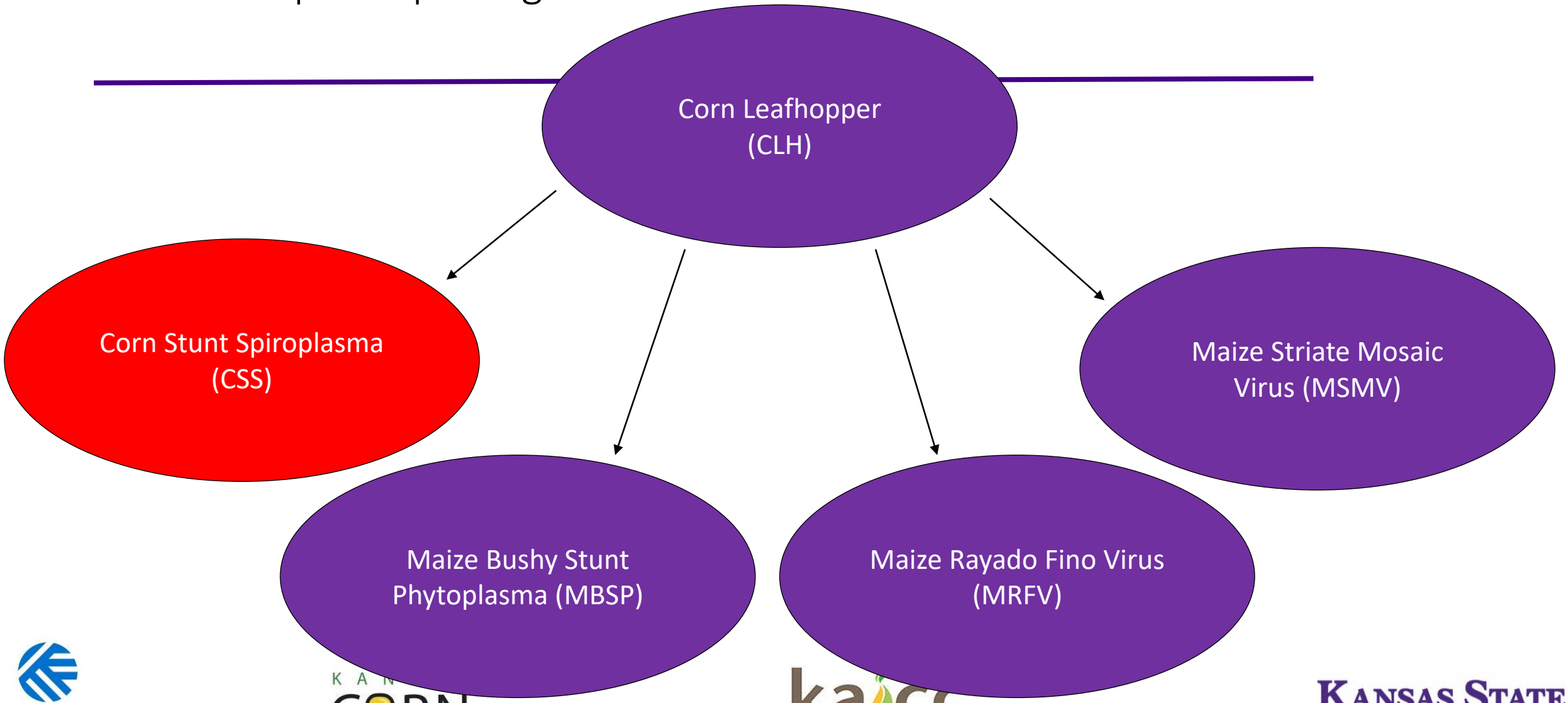
# CSS pathogen *Spiroplasma kunkelii* is considered the most important and widespread pathogen associated with corn stunt

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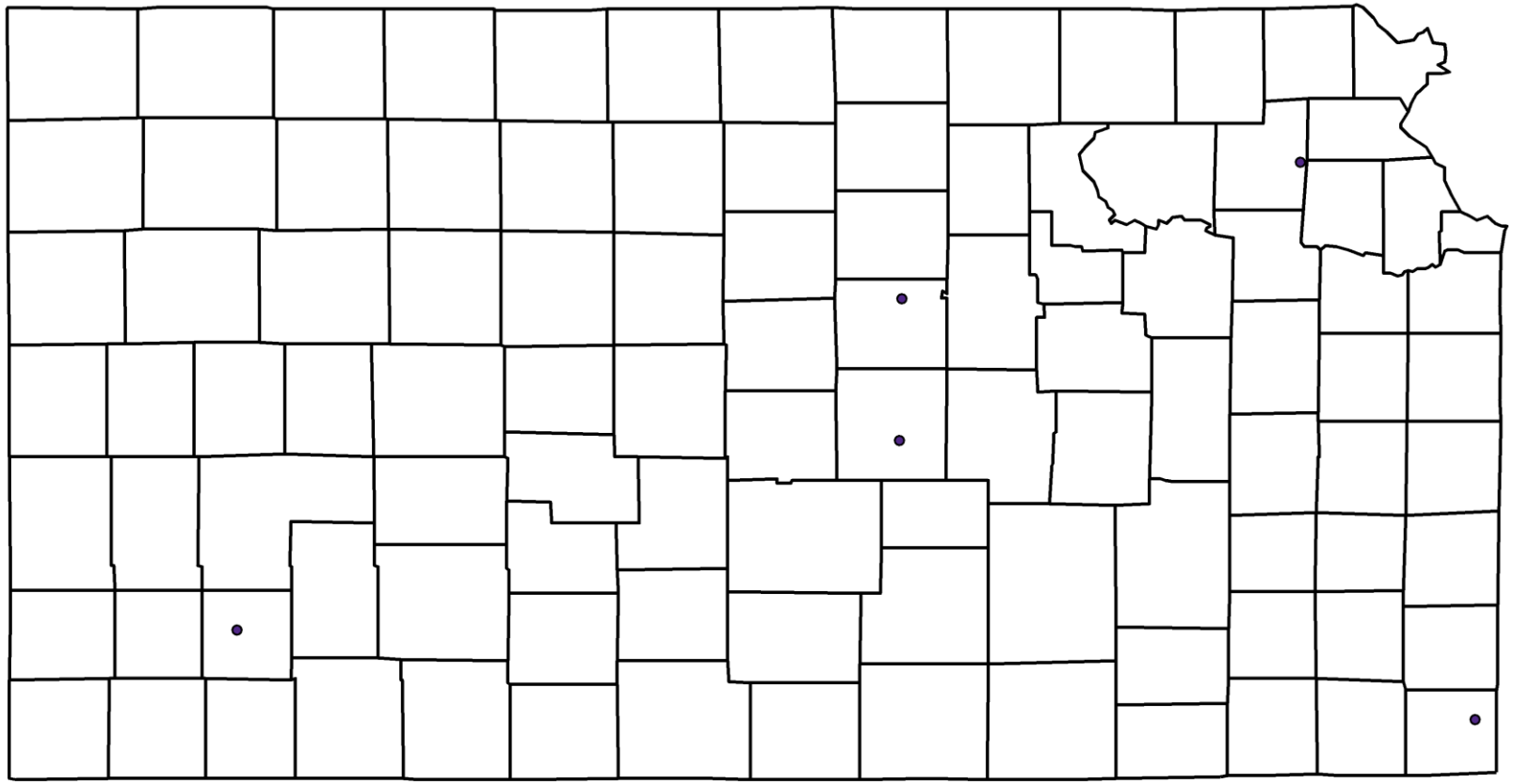
# Spread of Corn Leaf Hoppers 2025

2025-04-21



# CLH Detections

| | | |
|---|---|---|
| 0 | 70 | 140 |
| 10 | 80 | 150 |
| 20 | 90 | 160 |
| 30 | 100 | 170 |
| 40 | 110 | 180 |
| 50 | 120 | 190 |
| 60 | 130 | 200 |

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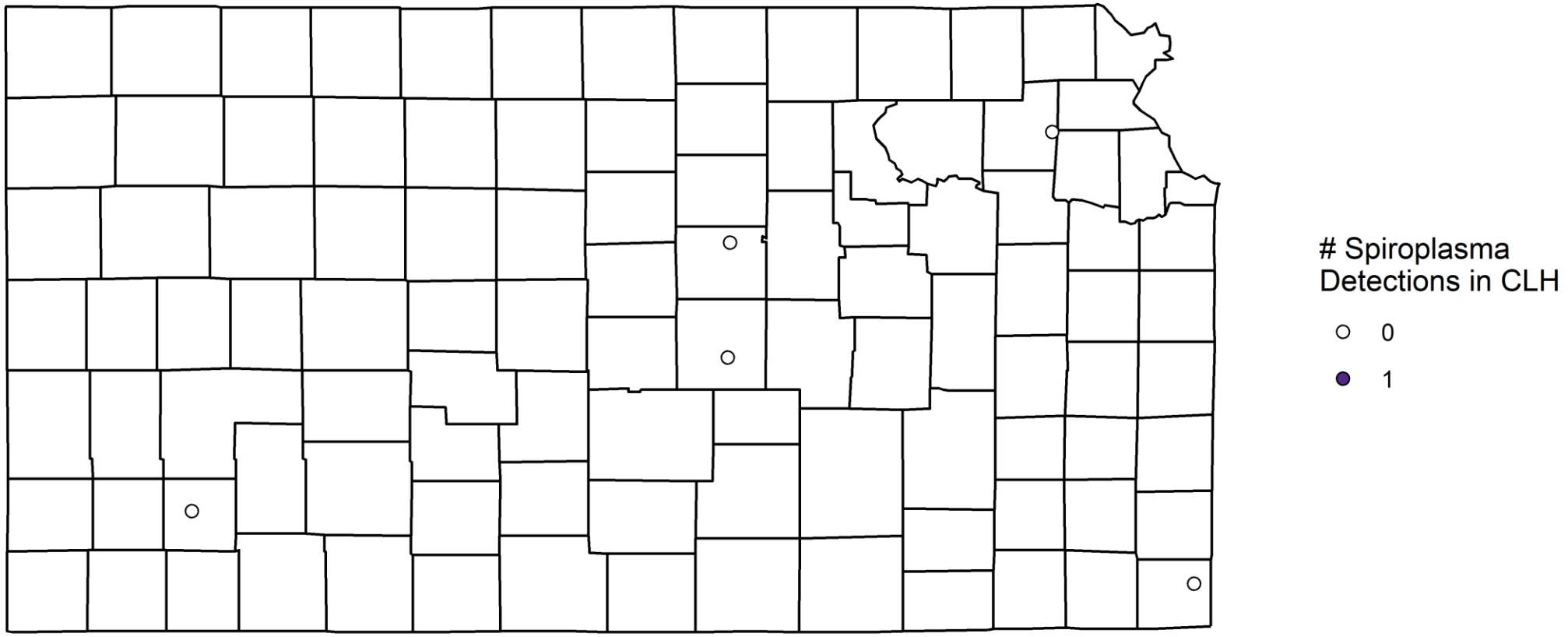
# Spread of Corn Stunt Spiroplasma

2025-04-21

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# Corn Stunt Symptoms

CSS

Healthy

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# Corn Stunt Symptoms

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# Corn Stunt Symptoms

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