# Wheat Entomology Newsletter 5, 10-3-2025

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## Statewide wheat stem sawfly (WSS) survey

To assess the spread and severity of Colorado wheat stem sawfly (WSS) infestation, a statewide survey has been conducted annually since 2013. The sites are selected based on wheat acreage per county, proximity to the previous year's wheat stubble, and a minimum distance of 10 miles from other survey sites. At each site, 100 wheat tillers are dissected to determine the presence of WSS larvae. Infestation levels are classified as follows:

- **Low**: <10% of tillers infested
- **Medium**: 10%–50% of tillers infested
- **High**: >50% of tillers infested

From 2013 through 2025, survey data indicated an increase in the proportion of infested sites. This included a notable rise in locations with medium and high infestation levels **(Table 1)**.

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Not Infested | 56 | 50 | 32 | 81 | 42 | 46 | 41 | 33 | 44 | 34 | 17 | 16 | 8 |
| <10% | 20 | 30 | 48 | 11 | 36 | 26 | 29 | 41 | 33 | 15 | 25 | 17 | 14 |
| 10-50% | 13 | 15 | 16 | 4 | 13 | 12 | 22 | 20 | 20 | 24 | 19 | 19 | 27 |
| >50% | 5 | 5 | 3 | 3 | 5 | 12 | 14 | 11 | 3 | 21 | 4 | 17 | 11 |
| Total Sites | 94 | 100 | 99 | 99 | 96 | 96 | 106 | 106 | 100 | 94 | 65 | 69 | 60 |

**Table 1: Number of CO wheat fields in each infestation category from 2013 to 2025.**

In 2025, populations remained relatively unchanged, with most counties experiencing only minor changes in infestation levels (**Figure 2**). However, Sedgwick, Lincoln, and Phillips counties saw significant increases in infestation, while Washington County experienced a decrease (**Table 2**). The average infestation rate for the entire state was 25.4%, which is a small decrease from 27.4% in 2024.

| County | # Sites (2024) | #Sites (2025) | Avg Infestation (2024) | Avg Infestation (2025) |
|---|---|---|---|---|
| Prowers | 5 | 3 | 1.2% | 1.3% |
| Kiowa | 5 | 5 | 0.6% | 1.4% |
| Cheyenne | 4 | 2 | 0.5% | 1.5% |
| Arapahoe | 0 | 1 | NA | 2.0% |
| Larimer | 1 | 1 | 12.0% | 2.0% |
| Baca | 4 | 3 | 0.3% | 2.7% |
| Kit Carson | 8 | 7 | 14.0% | 11.9% |
| Boulder | 1 | 1 | 2.0% | 16.0% |
| Yuma | 6 | 5 | 32.2% | 29.0% |
| Weld | 4 | 2 | 17.5% | 31.0% |
| Phillips | 4 | 4 | 28.0% | 37.3% |
| Adams | 9 | 10 | 37.9% | 44.2% |
| Washington | 9 | 7 | 58.0% | 44.3% |
| Morgan | 1 | 2 | 95.0% | 44.5% |
| Logan | 3 | 2 | 52.7% | 45.0% |
| Lincoln | 3 | 3 | 41.0% | 50.0% |
| Sedgwick | 2 | 2 | 45.5% | 67.0% |

**Table 2: Colorado survey sites and infestation averages per county in 2024 and 2025.**

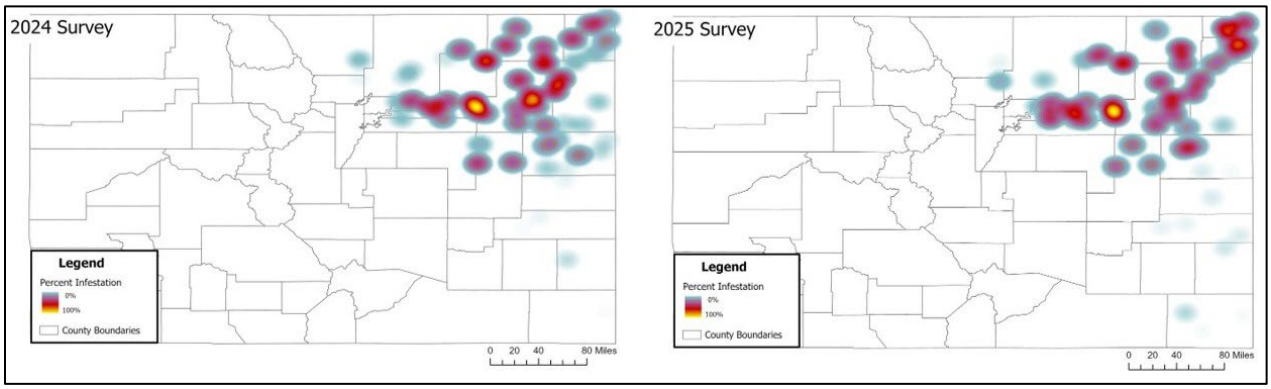


**Figure 2: Heat maps comparing Colorado WSS infestation in 2024 and 2025.**

## Statewide *Bracon* parasitoid survey

*Bracon* parasitoid wasps, which lay their eggs on the larva of the sawfly causing the death of these hosts, were detected in several locations for the first time in 2025 (**Figure 3**). In previous state-wide surveys, we did not find these parasitoids in significant numbers. While this development is encouraging, conservation efforts are essential to help these populations sustain and grow. The "Beneficial Bug Baler" project, funded by Colorado Wheat Royalty Funds (CWRF) and USDA-ARS, aims to support the natural *Bracon* parasitoid populations.

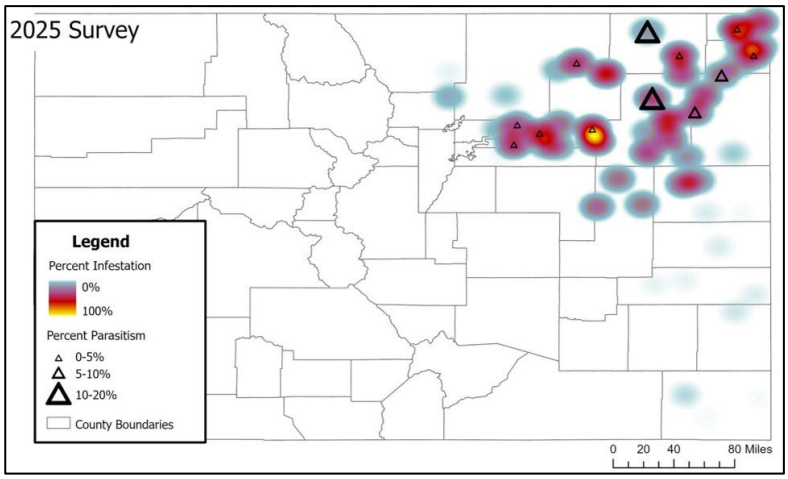


**Figure 3: Map depicting 2025 Colorado WSS infestation and *Bracon* parasitism.** Parasitism percentages were calculated as number of *Bracon* divided by number of WSS infested stems per site.

## Kansas wheat stem sawfly survey

In Kansas, similar to the Colorado survey, we dissected 100 tillers at each site to identify the presence of WSS larvae. Infestation levels were classified using the same criteria as in the Colorado survey. In the past, Kansas had low to no-infestation; however, infestation has been increasing since 2024.

| | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|
| Not Infested | 4 | 6 | 2 | 4 |
| <10% | 5 | 2 | 3 | 5 |
| 10-50% | 0 | 0 | 2 | 2 |
| >50% | 0 | 0 | 0 | 0 |
| Total Sites | 9 | 8 | 7 | 11 |

**Table 3: Number of KS wheat fields in each infestation category from 2022 to 2025.**

While the 2025 average statewide infestation decreased from 11.8% to 5.5%, this is largely due to a larger sample size for Rawlins county and no suitable wheat fields were found in Wallace and Decatur counties **(Figure 4**, **Table 4)**. Farmers in these regions are encouraged to scout their fields regularly and plant semi-solid varieties as needed.

| County | # Sites (2024) | # Sites (2025) | Average Infestation (2024) | Average Infestation (2025) |
|---|---|---|---|---|
| Wallace | 1 | 0 | 0% | N/A |
| Rawlins | 1 | 4 | 43% | 8% |
| Decatur | 2 | 0 | 1% | N/A |
| Cheyenne | 3 | 7 | 3% | 3% |

**Table 4: KS survey sites and infestation averages per county in 2024 and 2025.**

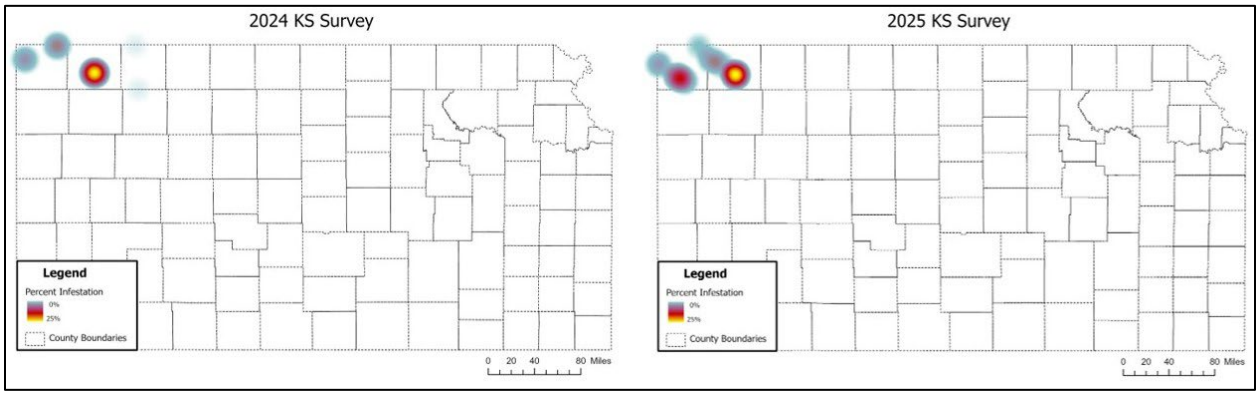


**Figure 4: Maps depicting Kansas WSS infestation in 2024 and 2025. Note:** a different scale (0-25%) used to represent WSS infestation compared to Colorado (0-100%).


## Acknowledgements

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