

INVESTIGATING NOVEL SOURCES OF RESISTANCE TO WHEAT STEM SAWFLY, A DEVASTATING PEST OF WHEAT

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PROJECT INTRODUCTION

The Wheat Stem Sawfly:

- Native pest to Eastern Colorado and the Great Plains region
- Common pesticide treatments do not prevent sawfly infestation
- Solid stem wheat variations are the main management strategy against the sawfly thus far

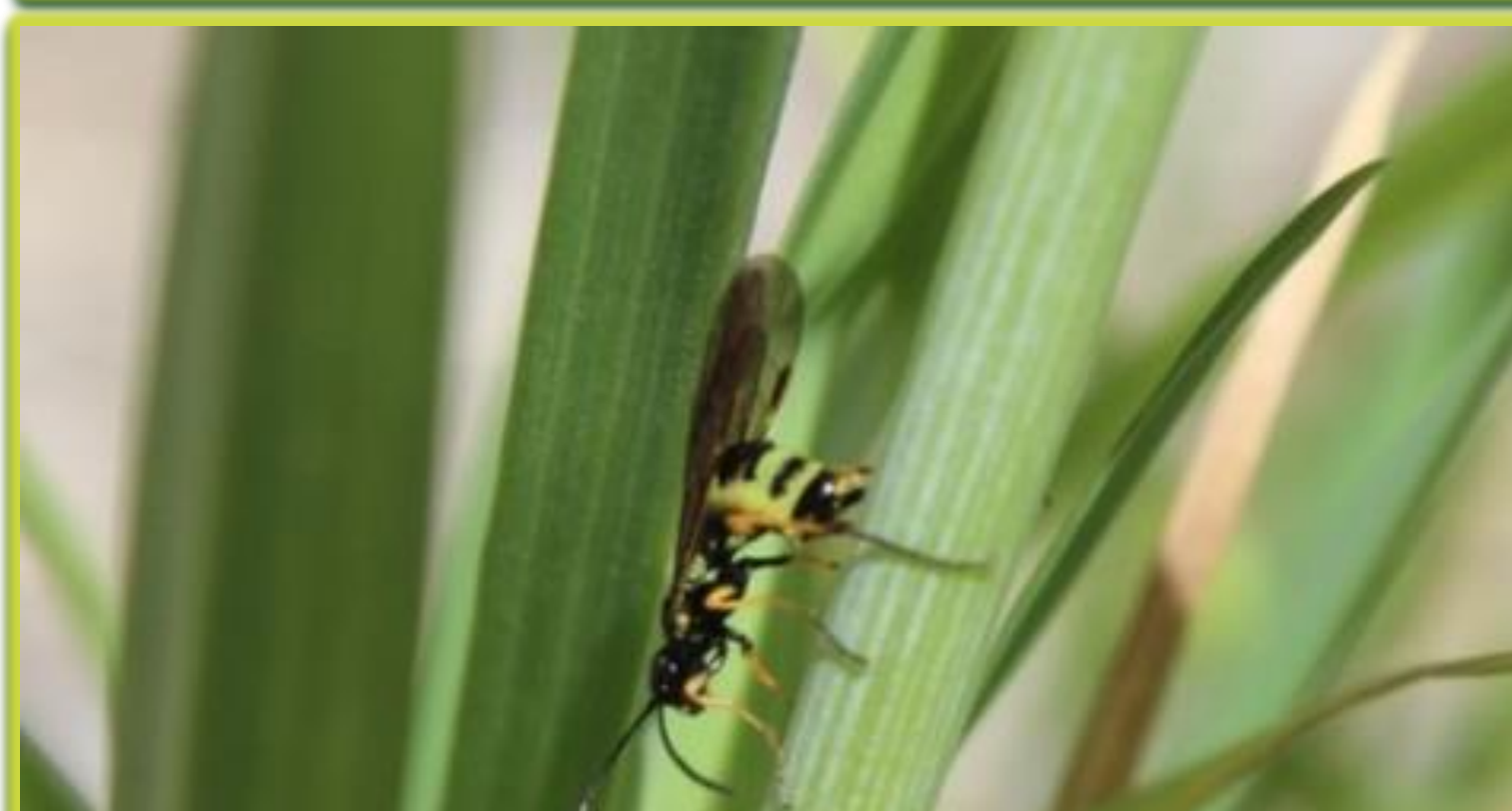


Figure 1 and 2. Wheat Stem Sawfly Egg (top) Photo: Ana de Zoeten, Adult Female Sawfly (bottom) Photo: Henrique Viera

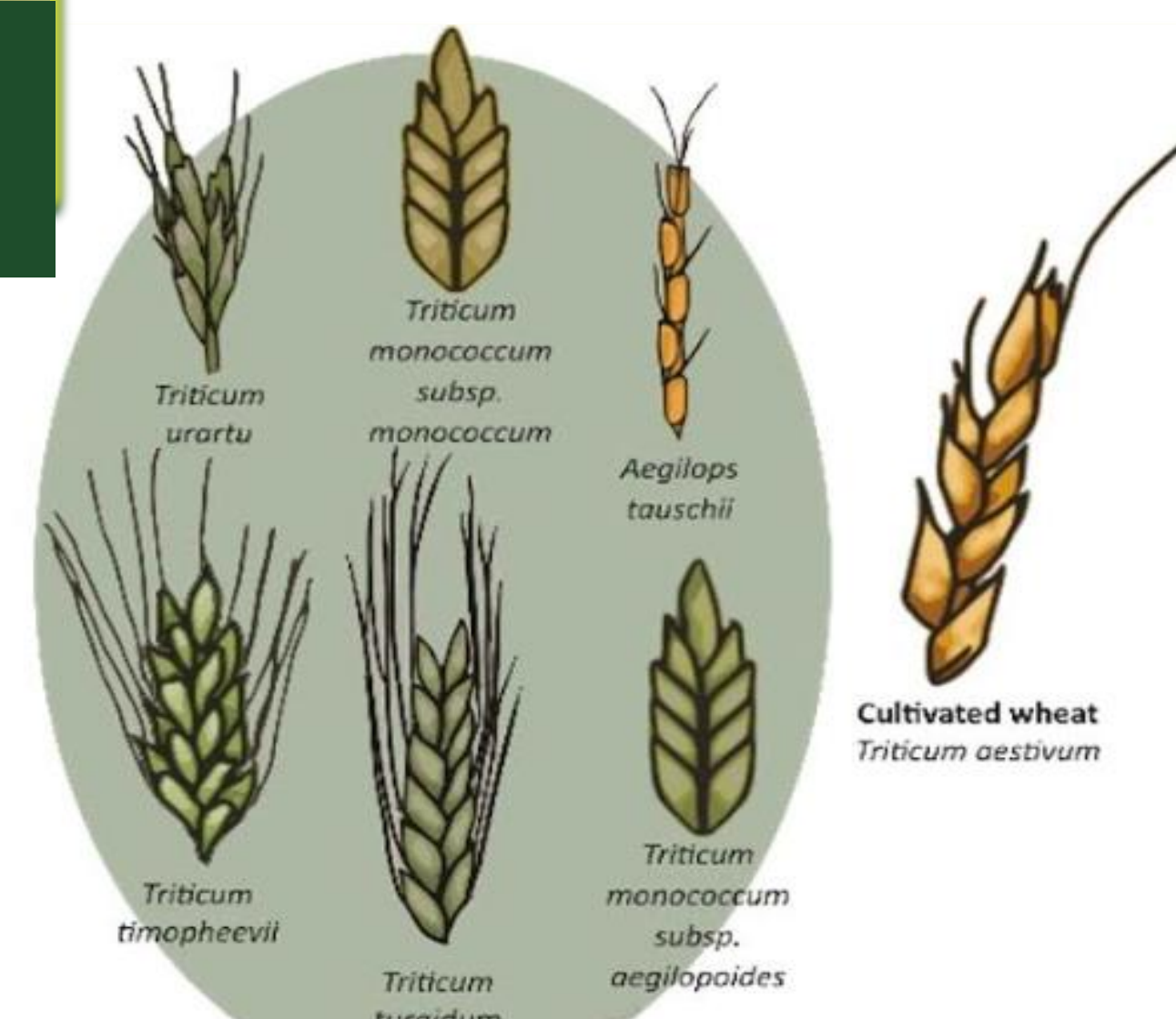


Figure 3. Ancestral wheat heads

Can ancestral wheat genetics prove beneficial in prevention of sawfly infestation?

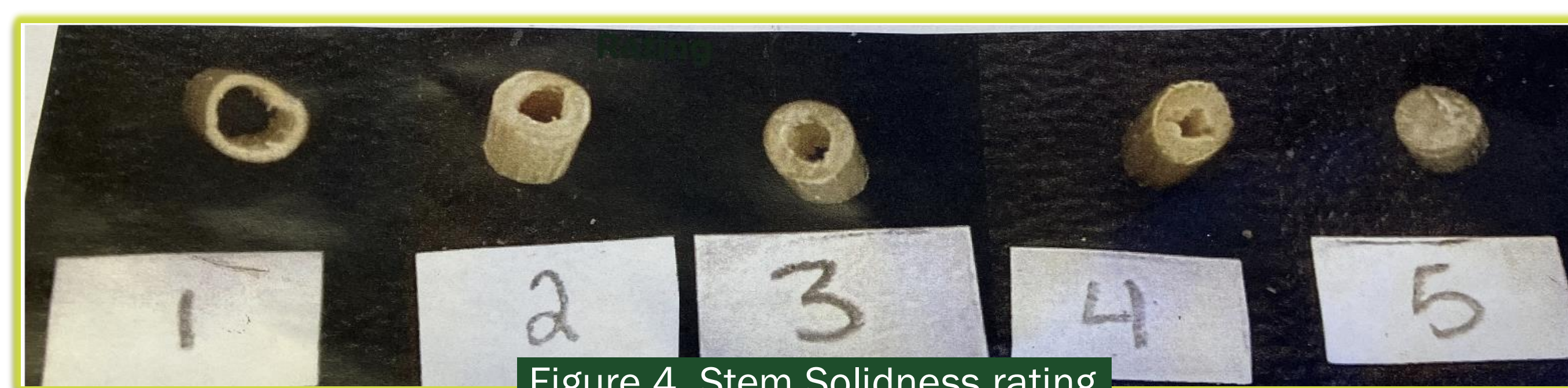


Figure 4. Stem Solidness rating

INTERNSHIP GOALS

- Gain a deeper insight into the wheat stem sawfly life history and why the pest is hard to treat
- Meet and learn from individuals who are in the agricultural industry, including professionals and farmers
- Gain hands on experience with sampling techniques and data interpretation

WHAT I DID

Field Work -

- Utilized sampling techniques to infest wheat stems
- Conducted insect sweeps to determine emergence times

Data Interpretation -

- Dissected wheat stems to examine WSS presence
- Added data into excel, made interpretable tables and graph to send to wheat breeders

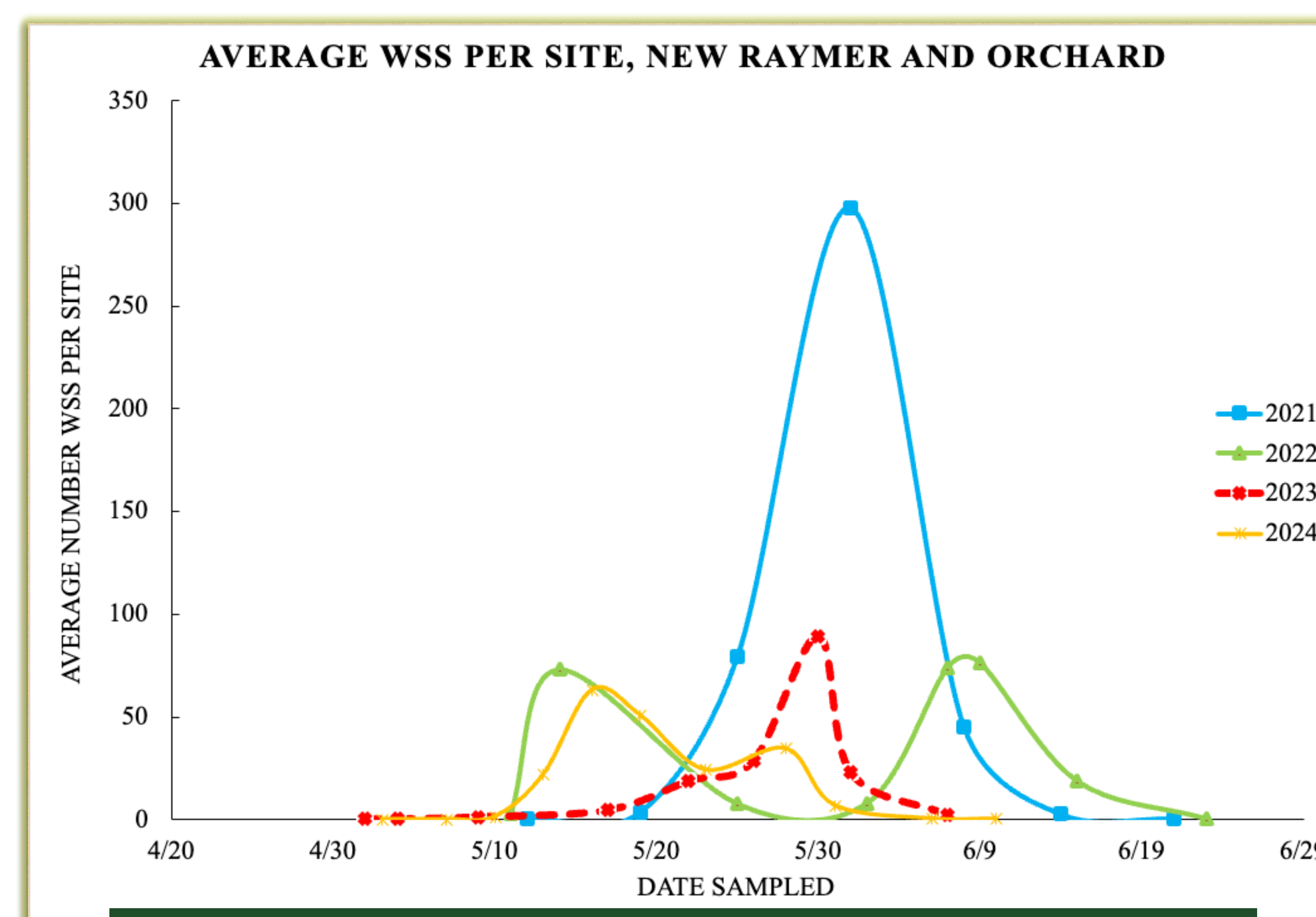


Figure 5. Flight graph data of adult sawflies over the past 4 years

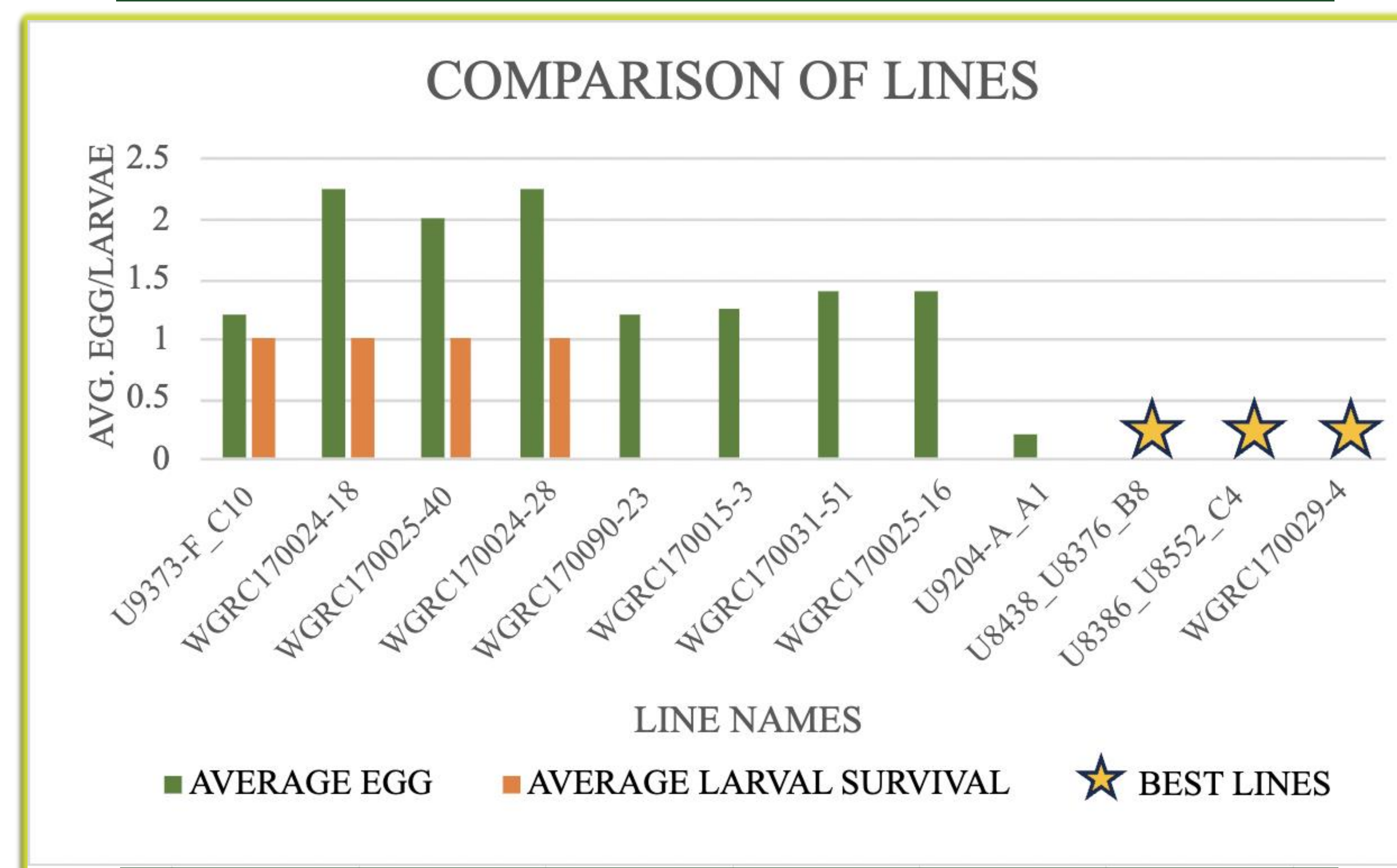


Figure 6. Comparison of a sample of the 205 wheat lines examined, exemplifying the range of resistance to the sawfly.

EXTENSION



Figure 7. Wheat Field Days in Akron, CO

Wheat Field Days -

- Took new findings about wheat genetics directly to farmers
- Industry professionals presented wheat issues to the community

Extension -

- Created tables that were understandable for wheat breeders to inform which lines were the most successful
- Created a graph that would be sent out in the wheat newsletter to visualize emergence times of sawflies over the past four years

WHAT I LEARNED

- Sampling techniques
- Wheat dissection and egg/larvae identification
- Data interpretation and extrapolation
- Outreach and importance of digestible scientific information
- Plant husbandry

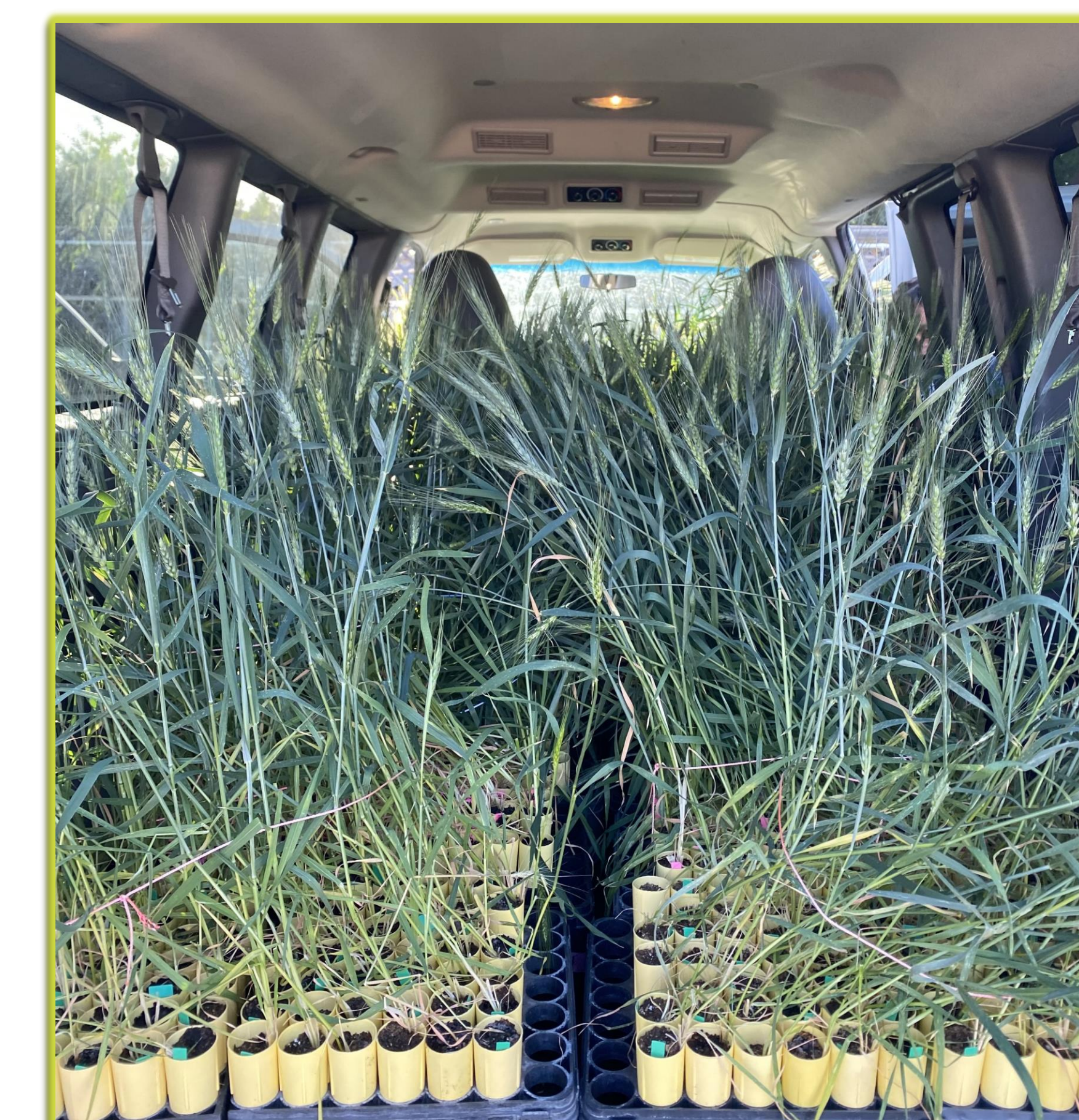


Figure 8. Transporting wheat to be infested in the field.