Identifying appearance of *H. halys* feeding damage at different phenological developmental stages in seven apple varieties

Amanda Bakken, Jim Walgenbach
Introduction

- *H. halys* is an occasional pest of tree fruit
- Past cage experiments have demonstrated that *H. halys* can cause damage to developing fruit during mid and late season growth periods
- Feeding at shuck split/petal fall in peaches and apples caused fruit abscission
Introduction

• Feeding damage can occur throughout the growing season
• Studies have not been conducted to illustrate how damage size progresses throughout the growing season
Objectives

• Determine width and depth of injury over time
• Determine width and depth of injury occurring in different locations on the fruit
• Determine distribution of puncture marks for each introduction period
Materials and Methods

• To determine stink bug damage appearance, nylon mesh exclusion cages (25” circumference, 27” height) were fitted around cylindrical deer fencing (19” circumference) which contained a 6” wooden dowel
Materials and Methods

• Cages were placed on the terminal ends of fruit bearing branches
• Seven different apple varieties
• Two adult *H. halys* were placed in each treatment at three week intervals for a 48 hour period
## Materials and Methods

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Materials and Methods

- At harvest all apples were removed and separated into their respective introduction period bags
- Fruit was stored in 35-40°F cooler to await processing
- Number of intact and aborted fruit was recorded for each introduction period
- Amount of feeding marks were recorded by feeding locations; shoulder, middle and ventral
- Feeding damage was assessed first by a superficial examination of the fruit, then by peeling and cutting each fruit
- Each feeding mark was measured
- Control cages were treated identically
Apples were measured for both height and width, then each feeding mark was measured for width and depth of damage.

Mid season feeding damage on a Ginger Gold; notice the brown necrotic tissue and surface depression.
Results

• Width of injury damage over time

| Parameter       | Estimate     | St. Error   | T Value | Pr > |t| |
|-----------------|--------------|-------------|---------|------|-----------|
| Intercept       | 9.279293307  | 0.25640852  | 36.19   | <.0001 |
| Intro Period    | -0.577846310 | 0.08078200  | -7.15   | <.0001 |
Results

- Depth of injury damage over time
Results

- Diff plot illustrating width of injury occurring in different locations on the fruit

Means with the same letter are not significantly different.

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Differences for alpha=0.05

- Not significant
- Significant
Results

- Diff plot illustrating depth of injury occurring in different locations on the fruit

Means with the same letter are not significantly different.

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Results

• Distribution of puncture marks for each introduction period
Conclusions

• Type of damage appearance did not change during the course of the growing season
• Injury inflicted early in the season tends to be larger in both puncture width and puncture depth than later in the season
• Damage is more prevalent and severe in the middle portion of the fruit
• There was no significant difference between introduction periods for amount of aborted fruit
Acknowledgements

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