

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

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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

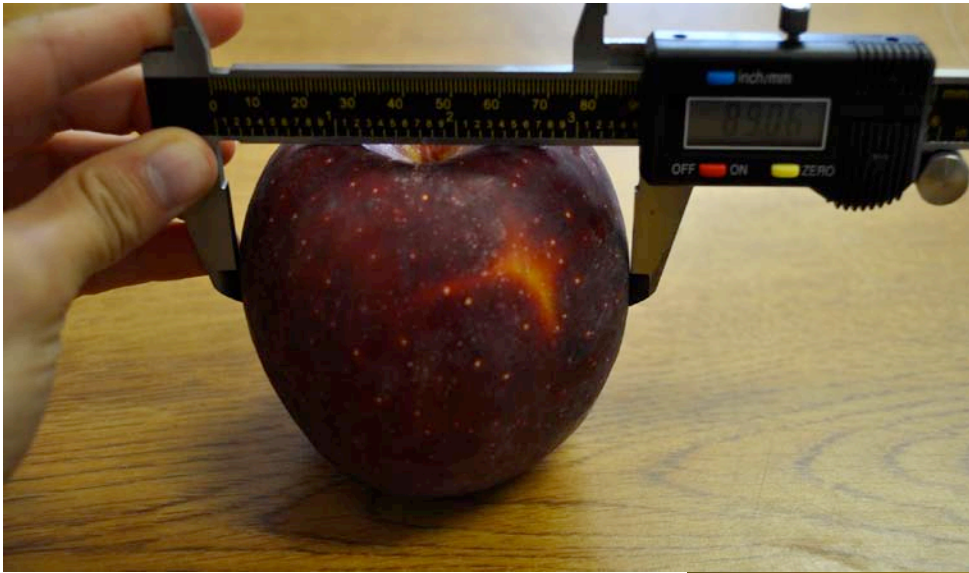
- Cages were placed on the terminal ends of fruit bearing branches
- Seven different apple varieties
- Two adult *H. halys* were placed in each treatment at three week intervals for a 48 hour period



Materials and Methods

- 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

Materials and Methods



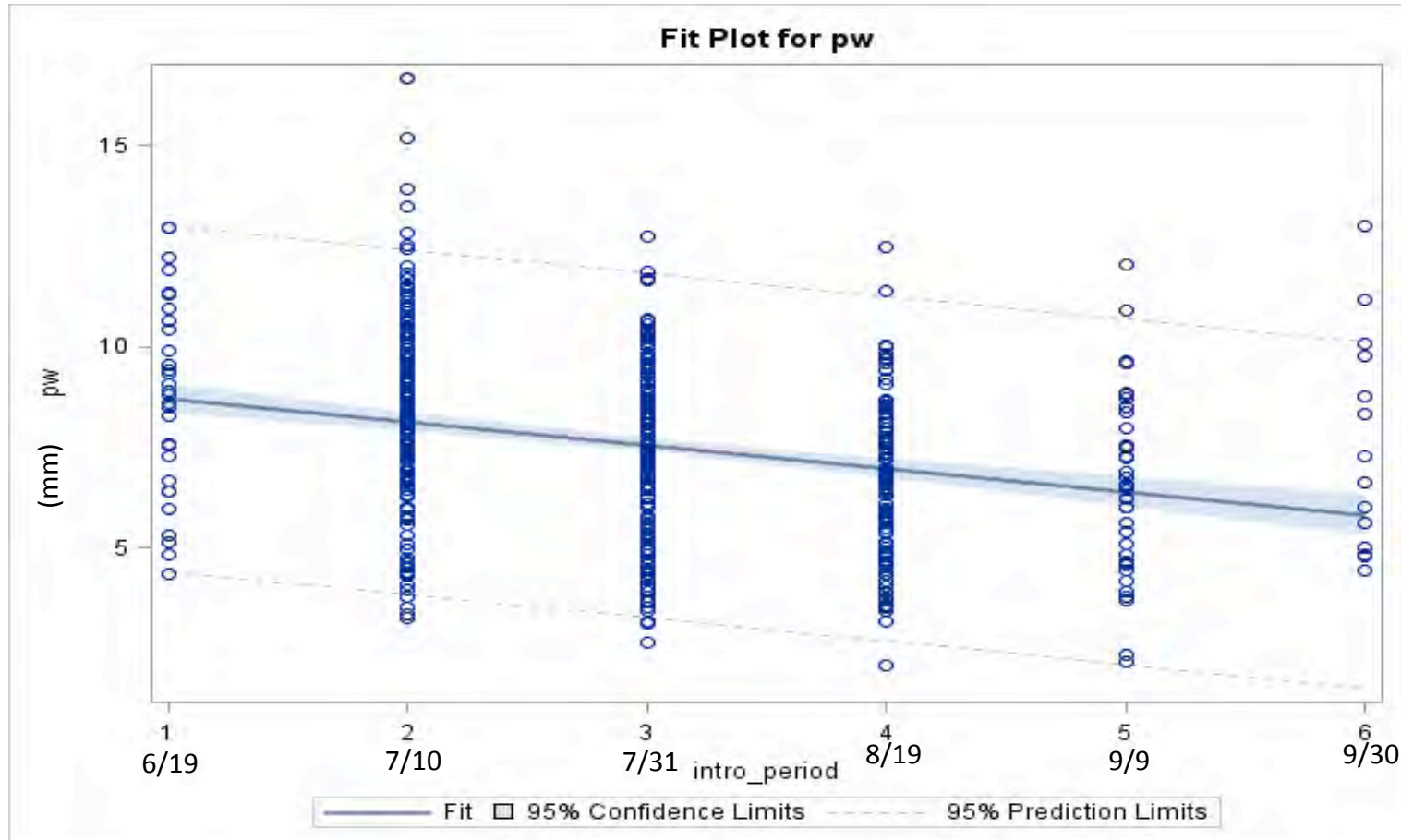
Apples were measured for both height and width, then each feeding mark was measured for width and depth of damage

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



Results

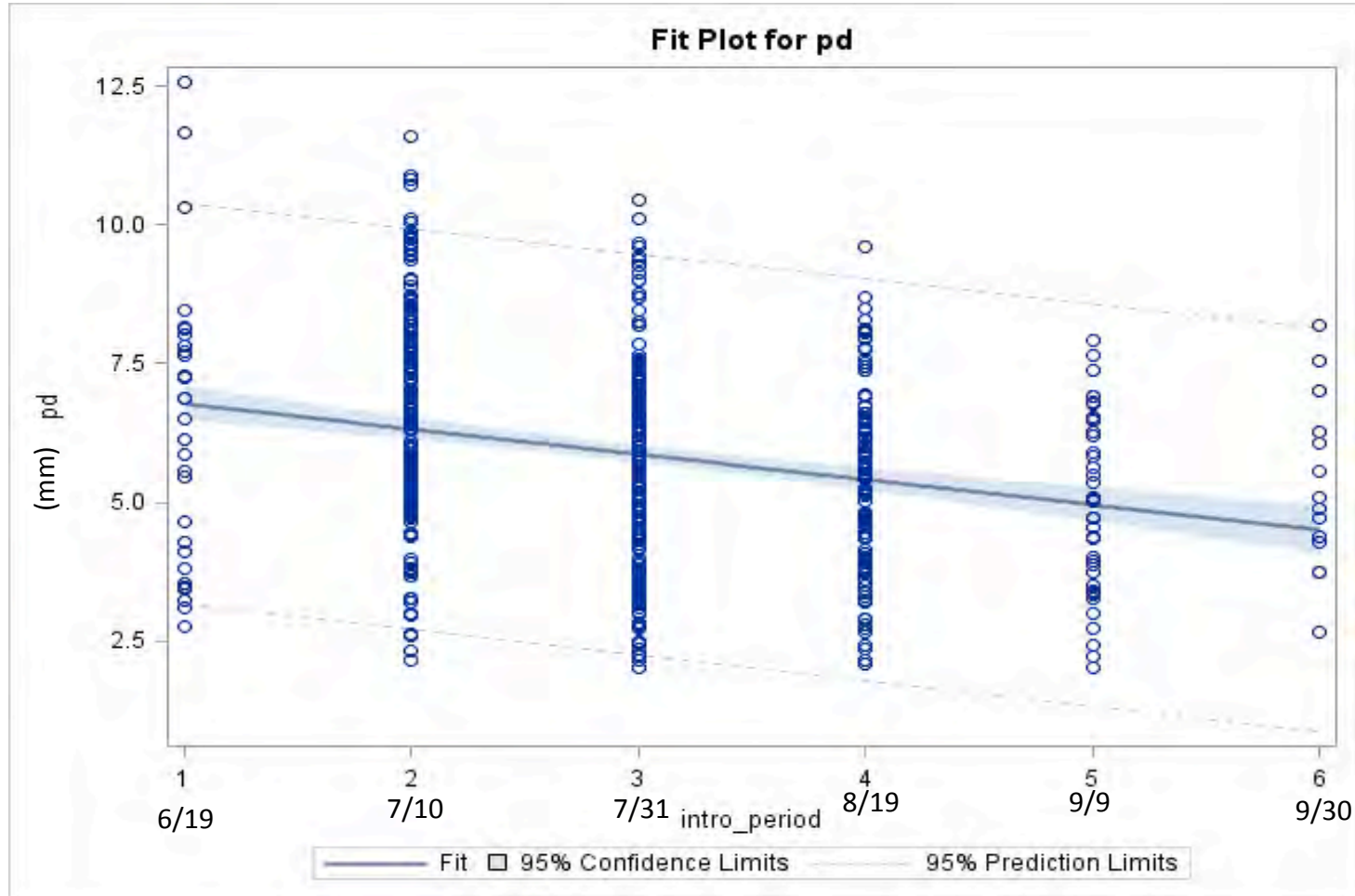
- Width of injury damage over time



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

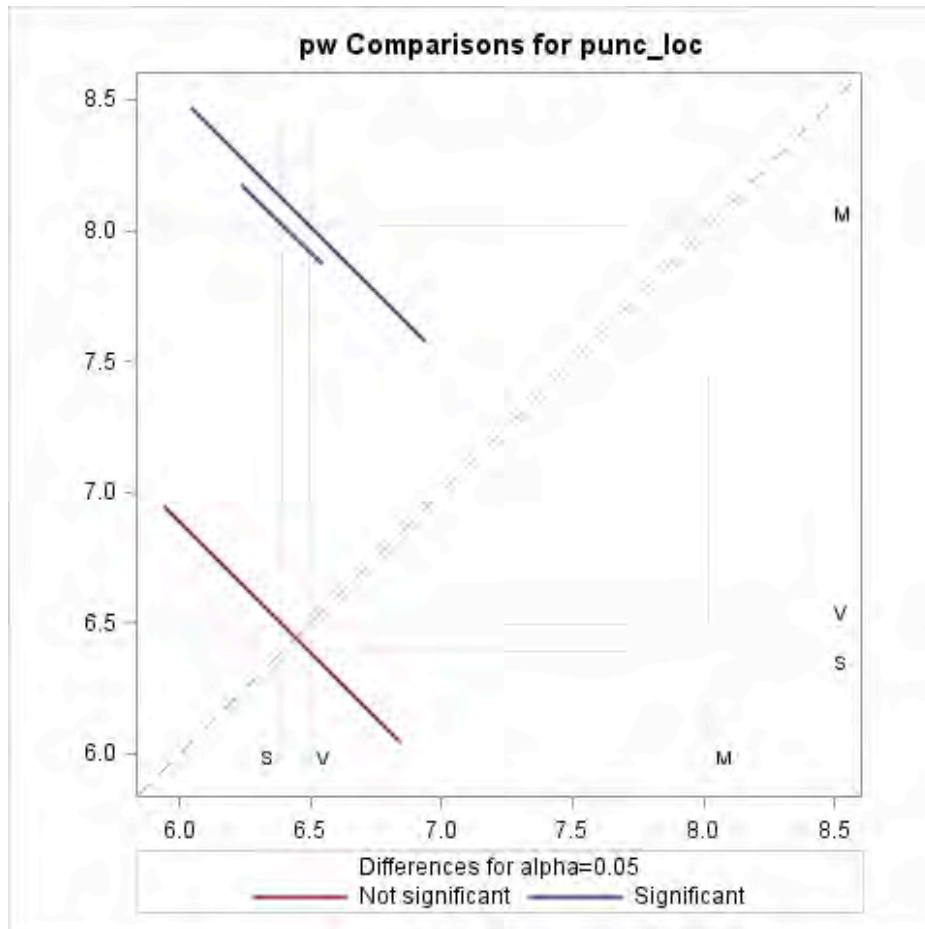
- Depth of injury damage over time



Parameter	Estimate	St. Error	T Value	Pr > t
Intercept	7.223415515	0.21649582	33.37	<.0001
Intro Period	-0.453985894	0.06820743	-6.66	<.0001

Results

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

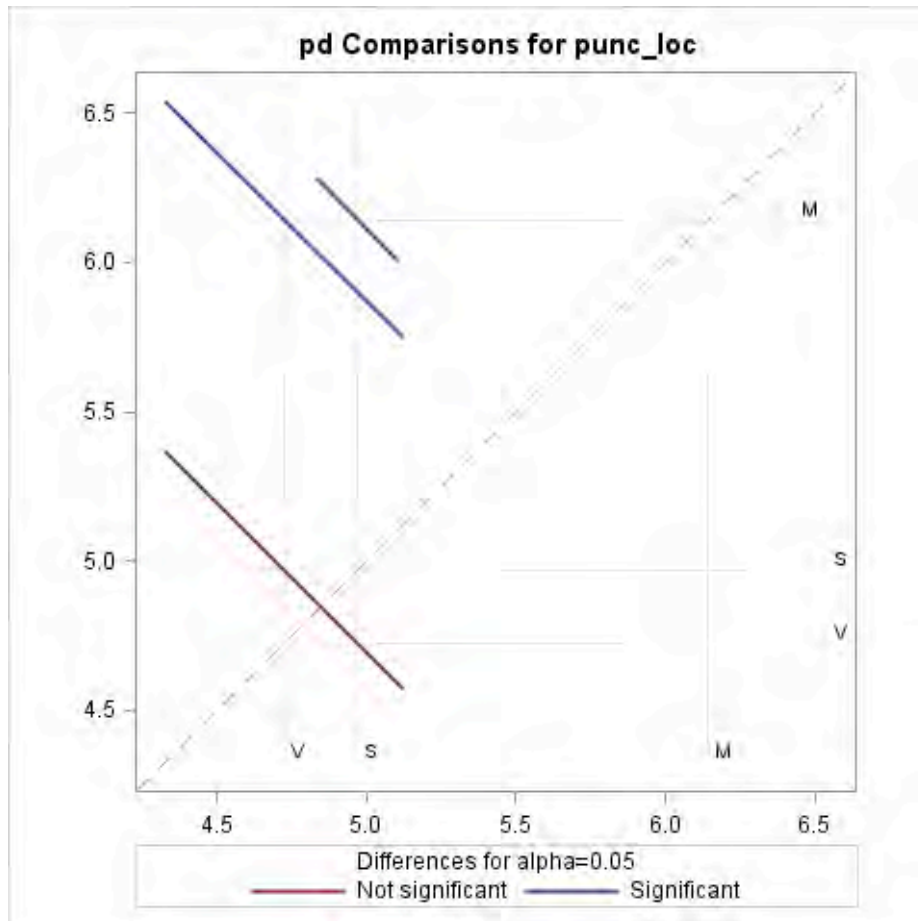


Means with the same letter are not significantly different.

t Grouping	Mean	N	Punc_Loc
A	8.2291	302	M
B	6.8306	257	S
B			
B	6.7838	16	V

Results

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

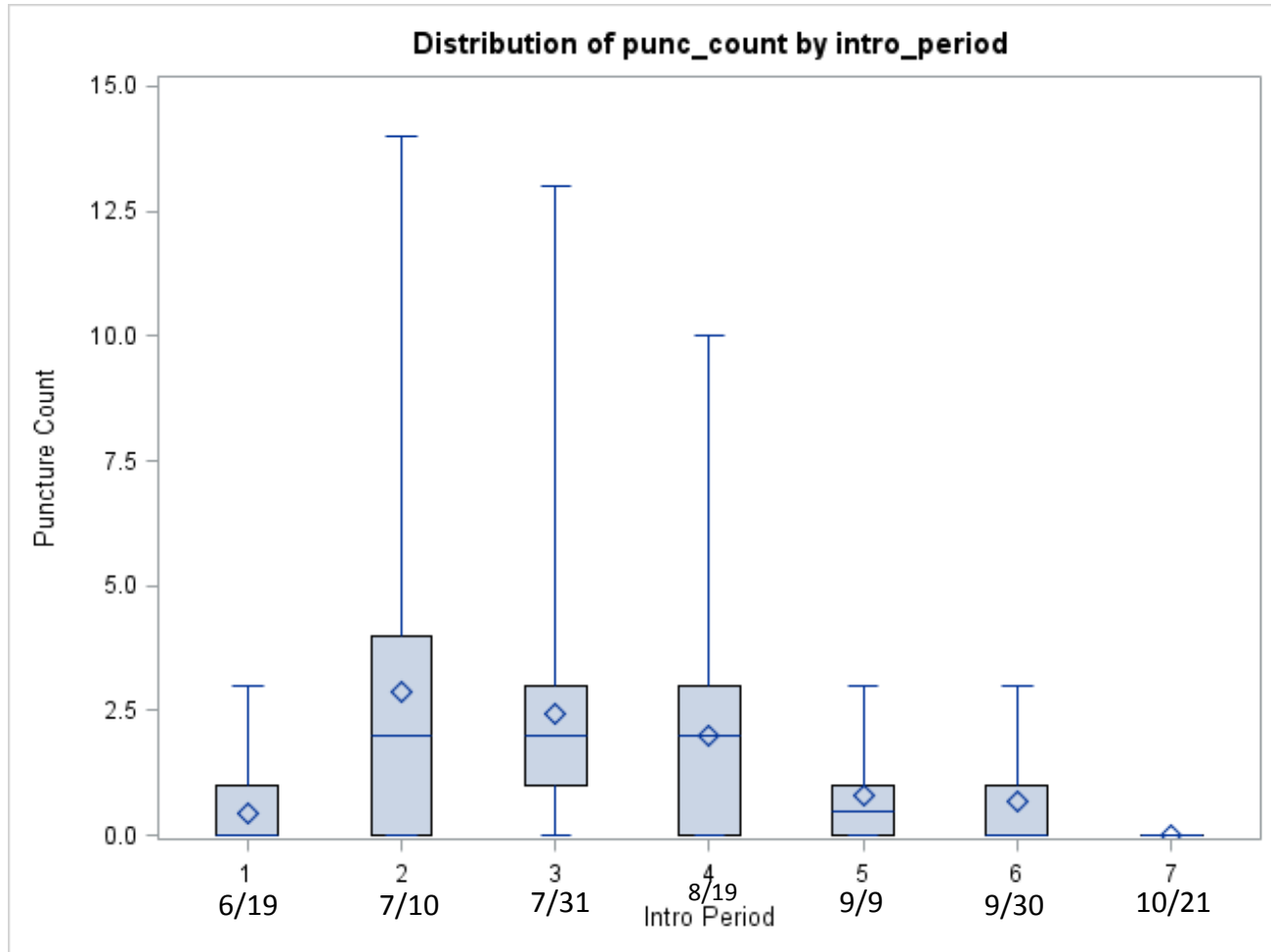


Means with the same letter are not significantly different.

t Grouping	Mean	N	Punc_Loc
A	6.4282	302	M
B	5.2780	257	S
B	5.0475	16	V

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

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