

# Vulnerability of Peach and Apple Fruit to BMSB: Temporal Effects



**Shimat V. Joseph<sup>1</sup>,**

**Chris Bergh<sup>1</sup>, & Tracy Leskey<sup>2</sup>**

<sup>1</sup>VA Tech, Winchester, VA; <sup>2</sup>USDA-ARS Kearneysville, WV






# Experiments

1. Incidence/effects of BMSB feeding injury on fruits (apple and peach) during discrete intervals
2. Post-harvest effects of BMSB feeding injury on fruits (apple)

# Introduction-Experiment 1

- High populations in Fall 2010
- Pressure/injury varied among orchards
- Adults first spotted at Winchester AREC in early May
- June 4<sup>th</sup>, 1<sup>st</sup> instars found on peach
- June 16<sup>th</sup>, 2<sup>nd</sup> instars on apple
- No peach/apple injury detected 6 June

# Fruit Injury: Susceptibility Periods

8 – 10 mm	12-18 mm	21 mm -1.25”	1.75-2.5”	2.75-3.75”
May	June	July	August	September
				

Stage of fruit development or maturity?

# Objectives

- To determine the incidence of injury from BMSB at discrete intervals during the season
- To establish the nature/expression of injury and its severity at harvest based on when it occurred
- Targeting BMSB management: “When does BMSB need to be targeted with sprays?”
















# Method

- Study was initiated at Winchester AREC:  
Apple 'Golden Delicious' and Peach 'Redhaven'
- No BMSB management imposed
- Routine sprays (e.g. Altacor) for lepidopteran pest management
- Maintenance fungicide applications

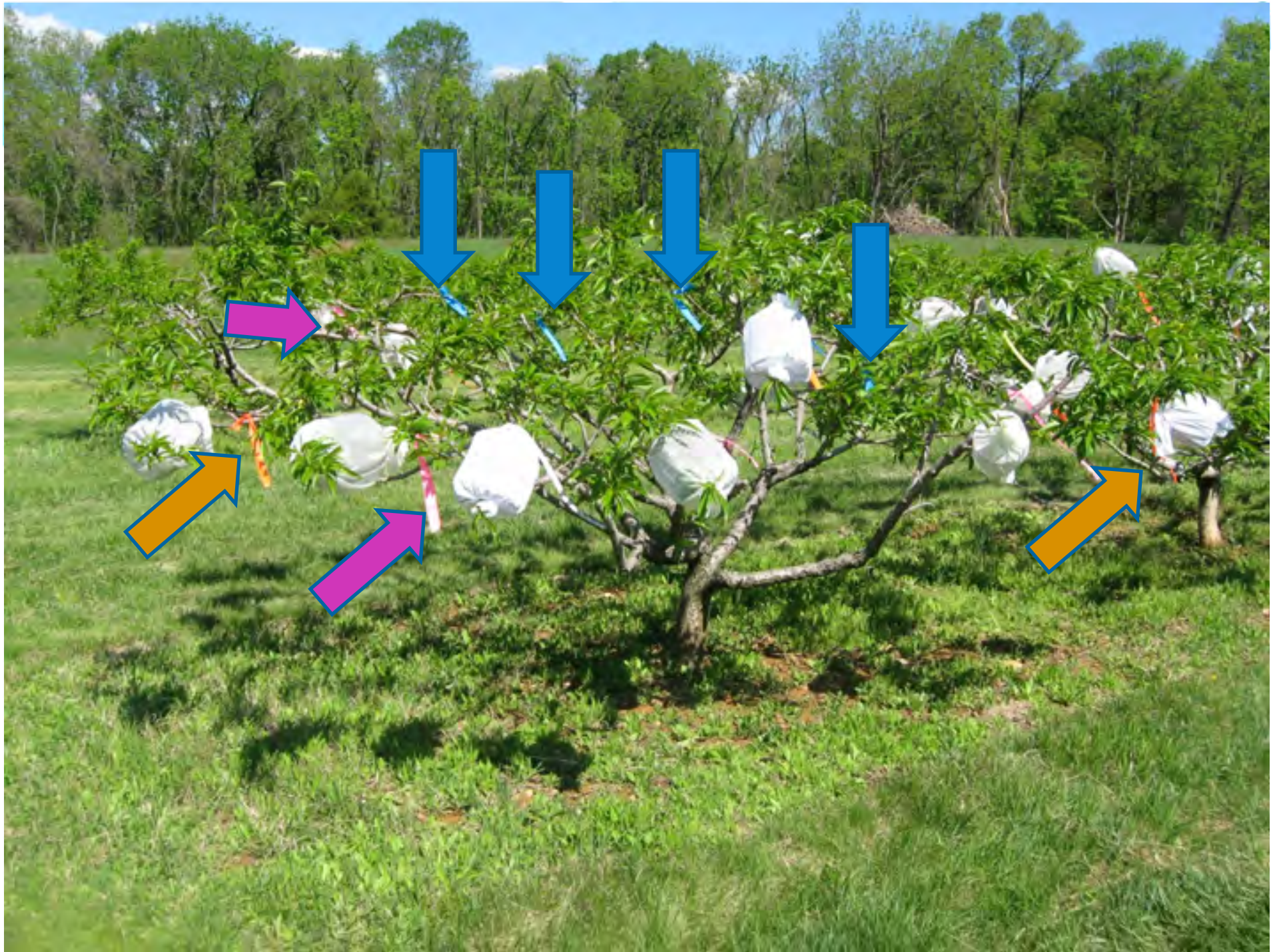
# Method

- Exposing sets of fruits to natural populations of BMSB for ~30 day periods throughout the growing season

# 5 peaches/tree x 10 trees/treatment

Treatment	May	June	July
Never caged			
Exposed in May			
Exposed in June			
Exposed in July			
Always caged			







- 50 fruits per treatment
- 10 peach trees

# Period of Exposure- Apple

Harvest



May	June	July	August	Sept.
				

- Never caged
- Always caged
- 5 apples/tree x 10 trees/treatment

- 50 fruits per treatment
- 10 apple trees







# Experiments

1. Incidence/effects of BMSB feeding injury on fruits (apple and peach) during discrete intervals
2. Post-harvest effects of BMSB feeding injury on fruits (apple)

# Introduction

- Reports of no external injury from BMSB on apples at harvest in 2010
- Injury symptoms reported after a period in cold storage
- How is feeding during the final weeks before harvest expressed at harvest and after a period in cold storage? Do we need to manage BMSB through harvest?



# Objective

- Characterize BMSB injury (external/internal) at harvest & during the post-harvest period based on when the injury occurred in September

# Method

- Studies will be conducted on 'Red Delicious' at Winchester, VA and on 'Golden Delicious' at Kearneysville, WV
- BMSB will be collected from wild populations
- Five adults will be caged on a set of fruits for 7 day intervals beginning September 1

# In September



All Caged

Harvest



1<sup>st</sup> wk

2<sup>nd</sup> wk

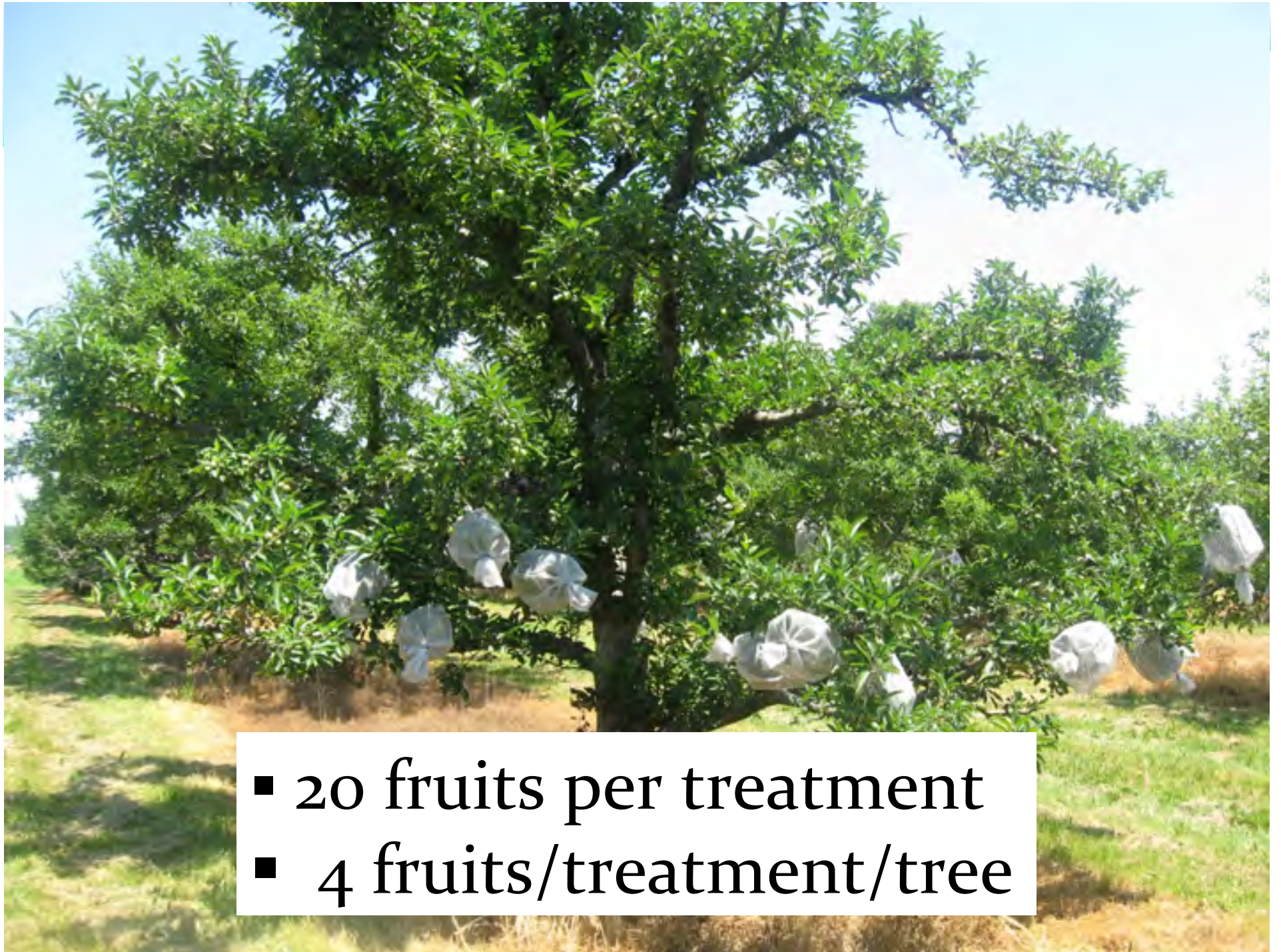
3<sup>rd</sup> wk

4<sup>th</sup> wk



# Method

- If external injury is present at harvest, then internal injury will be assessed
- If not, hold apples for 3 days under normal conditions, then place in cold storage for evaluation of external injury at regular intervals



- 20 fruits per treatment
- 4 fruits/treatment/tree



# Thank You!



<http://www.kval.com/outdoors/featured/104018099.html>