

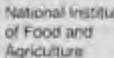
# BMSB PHENOLOGY AND VOLTINISM IN UTAH

Diane Alston, Lori Spears, Cody Holthouse\*,  
Zach Schumm\* & Cami Cannon\*\*  
Utah State University

\*Graduate students; \*\*Vegetable IPM Associate

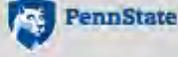
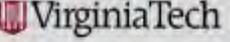


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Specialty Crop Research Initiative

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# BMSB PHENOLOGY & VOLTINISM IN UTAH

# HOST PLANT SURVEYS 2017-18

Salt Lake City:  
Catalpa -  
Sentinel host



# BMSB URBAN HOST PLANT SURVEY

**EXTENSION**  
Utah State University

UTAH PESTS

COOPERATIVE AGRICULTURAL PEST SURVEY

## BMSB Plant Hosts of Utah

Current Known Host Plants of Brown Marmorated Stink Bug in Utah

Family Name	Scientific Name	Common Name
Aceraceae	<i>Acer freemanii</i>	Autumn blaze maple
Aceraceae	<i>Acer ginnala</i>	Amur maple
Aceraceae	<i>Acer grandidentatum</i>	Bigtooth Maple
Aceraceae	<i>Acer negundo</i>	boxelder
Aceraceae	<i>Acer nigrum</i>	black maple
Aceraceae	<i>Acer Palmatum</i>	fireglow Japanese maple
Aceraceae	<i>Acer platanoides</i>	Norway maple
Aceraceae	<i>Acer platanoides</i>	Norway maple 'Crimson King'
Aceraceae	<i>Acer rubrum</i>	red maple
Apocynaceae	<i>Vinca major</i>	vinca
Araliaceae	<i>Hedera helix</i>	English ivy
Asteraceae	<i>Helianthus annuus</i>	wild sunflower
Berberidaceae	<i>Mahonia repens</i>	creeping oregon grape
Bignoniaceae	<i>Campyloc radicans</i>	trumpet vine
Bignoniaceae	<i>Catalpa speciosa</i>	catalpa
Boraginaceae	<i>Eorago officinalis</i>	borage
Buddleiaceae	<i>Buddleia spp</i>	butterfly bush
Caprifoliaceae	<i>Lonicera maackii</i>	Amur honeysuckle
Cornaceae	<i>Cornus alba</i>	redtwig dogwood variation 'Elegantissima'
Cucurbitaceae	<i>Cucurbita pepo</i>	squash
Cupressaceae	<i>Tinuj plicata</i>	western arborvitae
Fabaceae	<i>Caragana arborescens</i>	Siberian pea shrub
Fabaceae	<i>Cercis canadensis</i>	eastern redbud
Fabaceae	<i>Gleditsia triacanthos</i>	honey locust
Fabaceae	<i>Gleditsia triacanthos var. inermis</i>	thornless honeylocust

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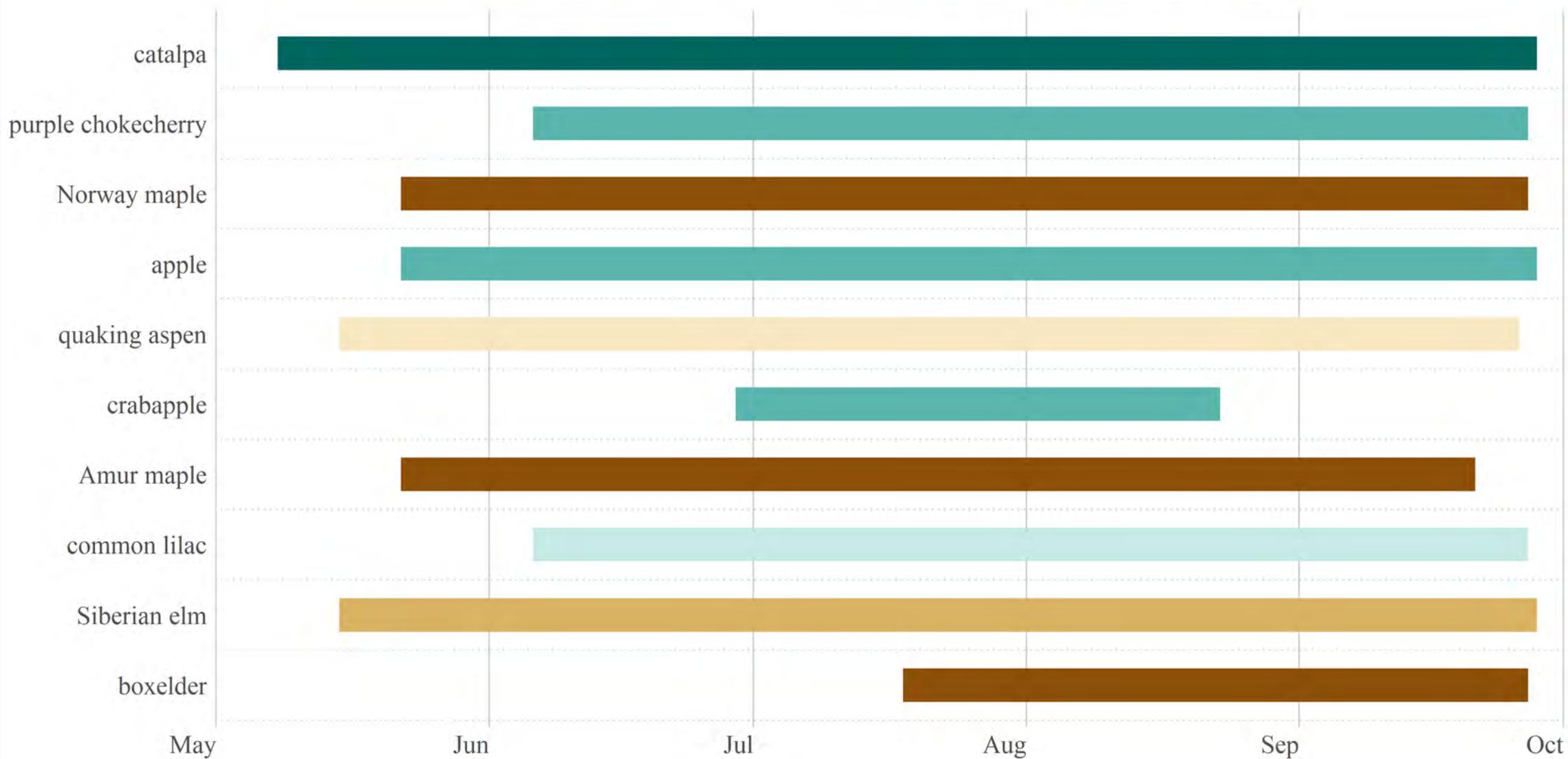
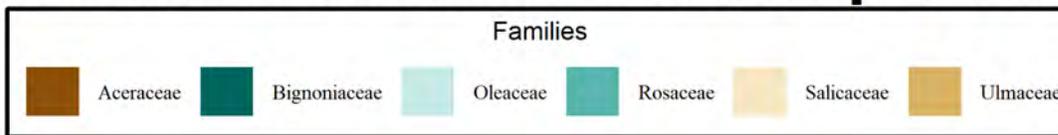
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Surveys in 4 counties (northern UT) in 2017 & 2018  
63 plant species  
24 plant families

Most common families/highest populations:  
Aceraceae (maple, boxelder)  
Bignoniaceae (catalpa, trumpet vine)  
Fabaceae (Siberian pea shrub, locust, redbud)  
Fagaceae (beech)  
Oleaceae (privet, lilac)  
Rosaceae (apple, cherry, peach, plum, rose)  
Salicaceae (quaking aspen)  
Scrophulariaceae (butterfly bush)  
Ulmaceae (Siberian elm)

<https://utahpests.usu.edu/caps/bmsb-host-plants>

# BMSB Seasonal Occurrence On Top 10 Host Plants



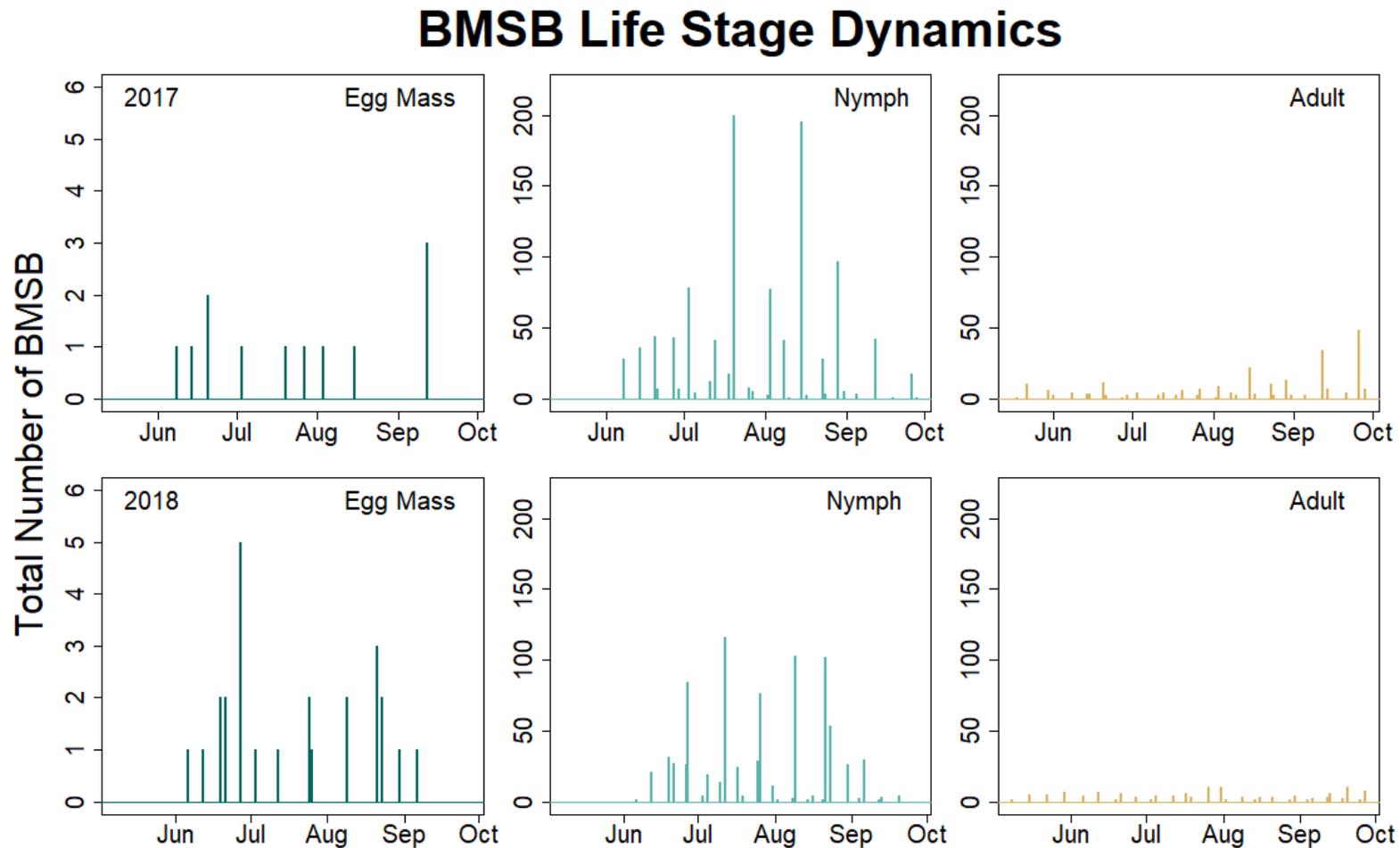
# START OF SPRING ACTIVITY & EGG-LAYING

Table 1. Estimated dates for BMSB life stage activity during the past 5 years (2014-2018) using a biofix of 13.5 hour photoperiod (i.e., degree days begin to accumulate once day length reaches 13.5 hours) (Nielsen et al. 2016; Wilson et al. 2017). Day length was taken from the [Astronomical Applications Department of the U.S. Naval Observatory](#) website, and temperature data used for calculating degree days was taken from the [Utah Climate Center/Utah Traps](#) website. Degree days are calculated at base 57.2°F.

<i>Event ---&gt;</i>	1st overwintered adults expected	Egg laying begins	New (summer) generation adults expected
<i>Environmental cue ---&gt;</i>	13.5-hr day (biofix)	135 DD	1099 DD
River Heights (Cache County)	18-19 April	4-10 June	9-26 August
Kaysville (Davis County)	19-20 April	24 May - 3 June	23-27 July
Payson (Utah County)	20-21 April	29 May - 5 June	28 July - 2 August
Leeds (Washington County)	24-25 April	7-17 May	29 June - 5 July

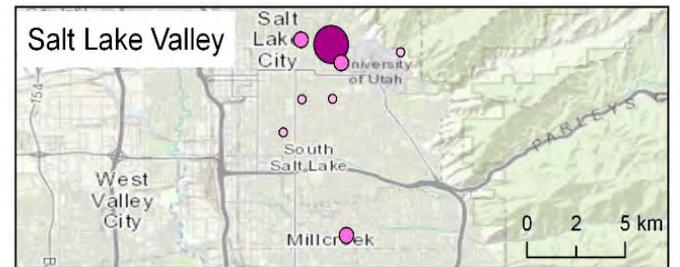
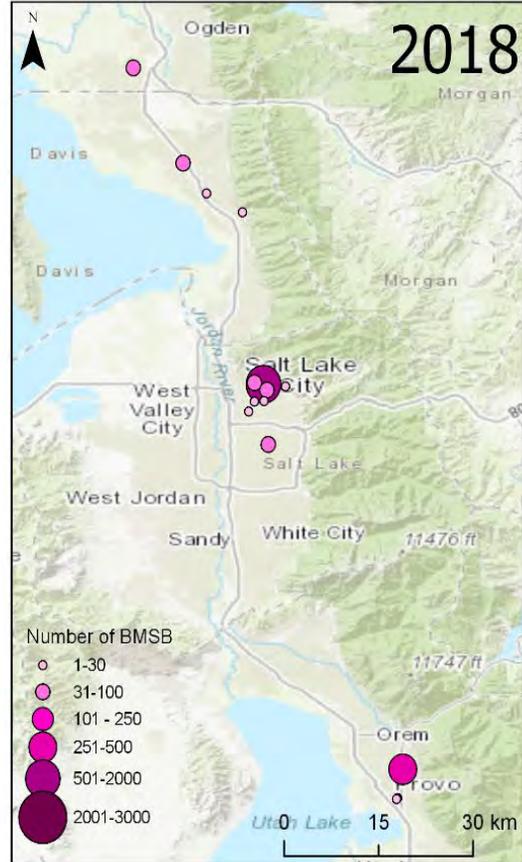
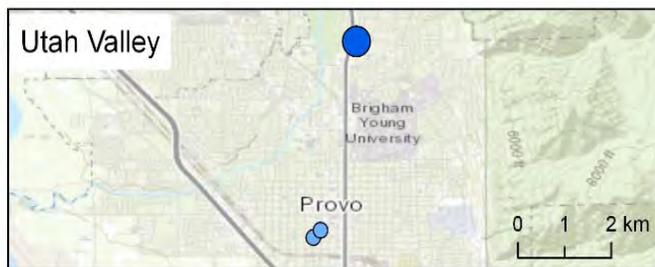
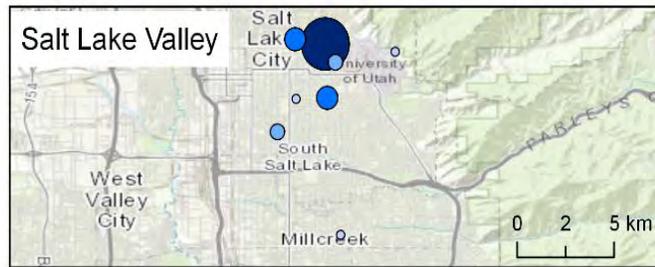
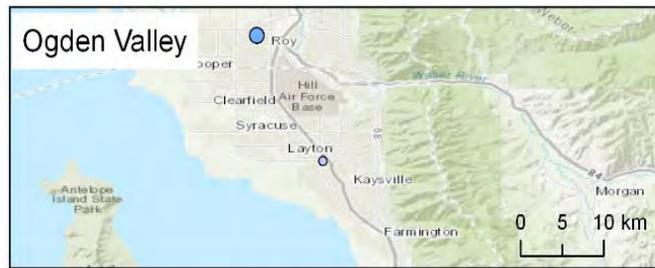
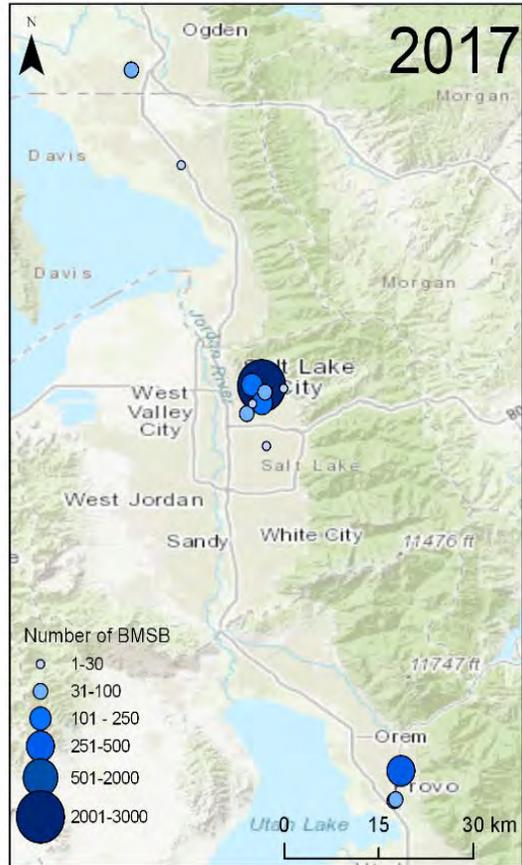
# BMSB Phenology by Life Stage on Urban Host Plants

Higher populations in 2017 (top) than 2018 (bottom)



Summer of 2018: severe heat and drought

# BMSB Survey Maps

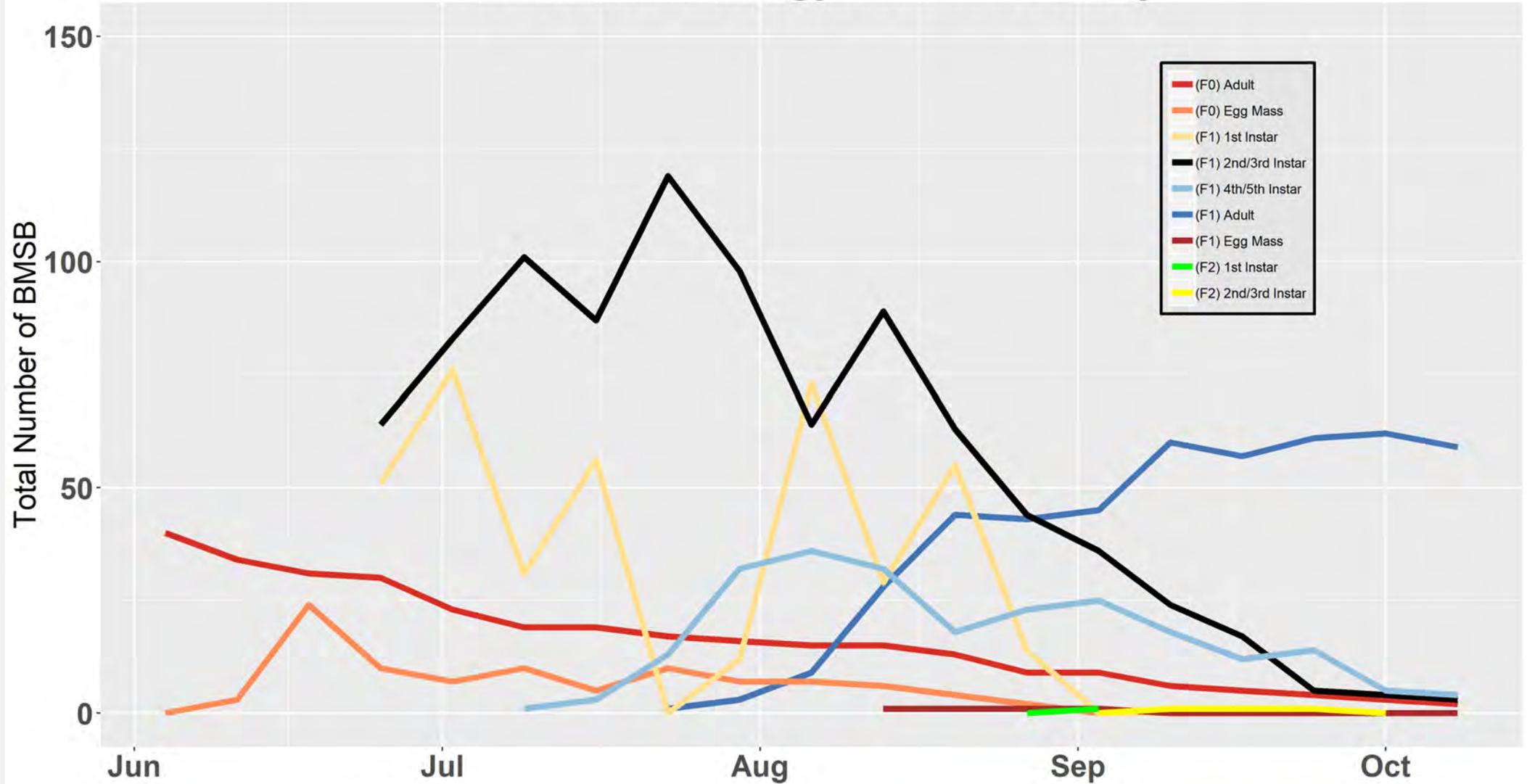


# VOLTINISM STUDY 2018

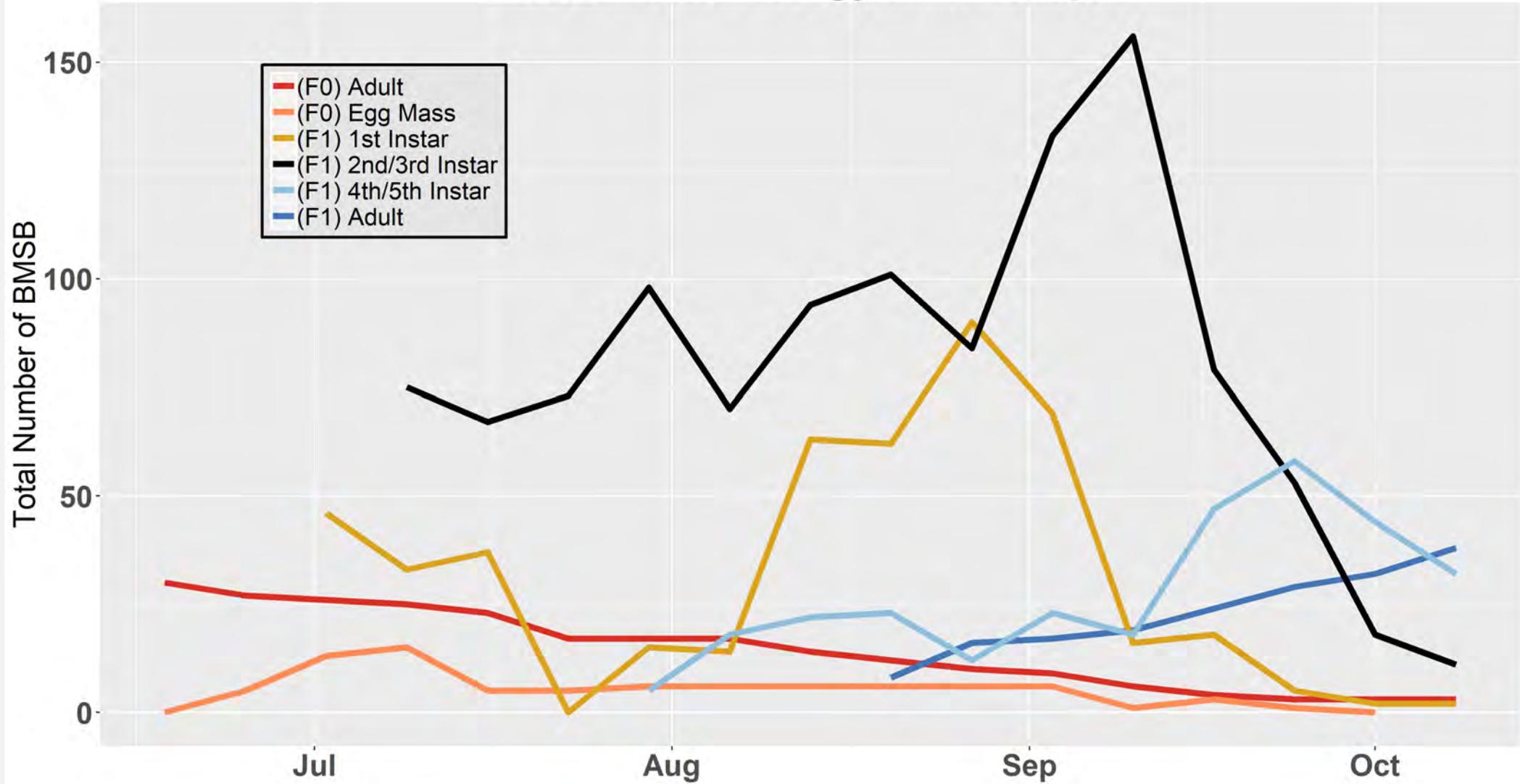


# Voltinism

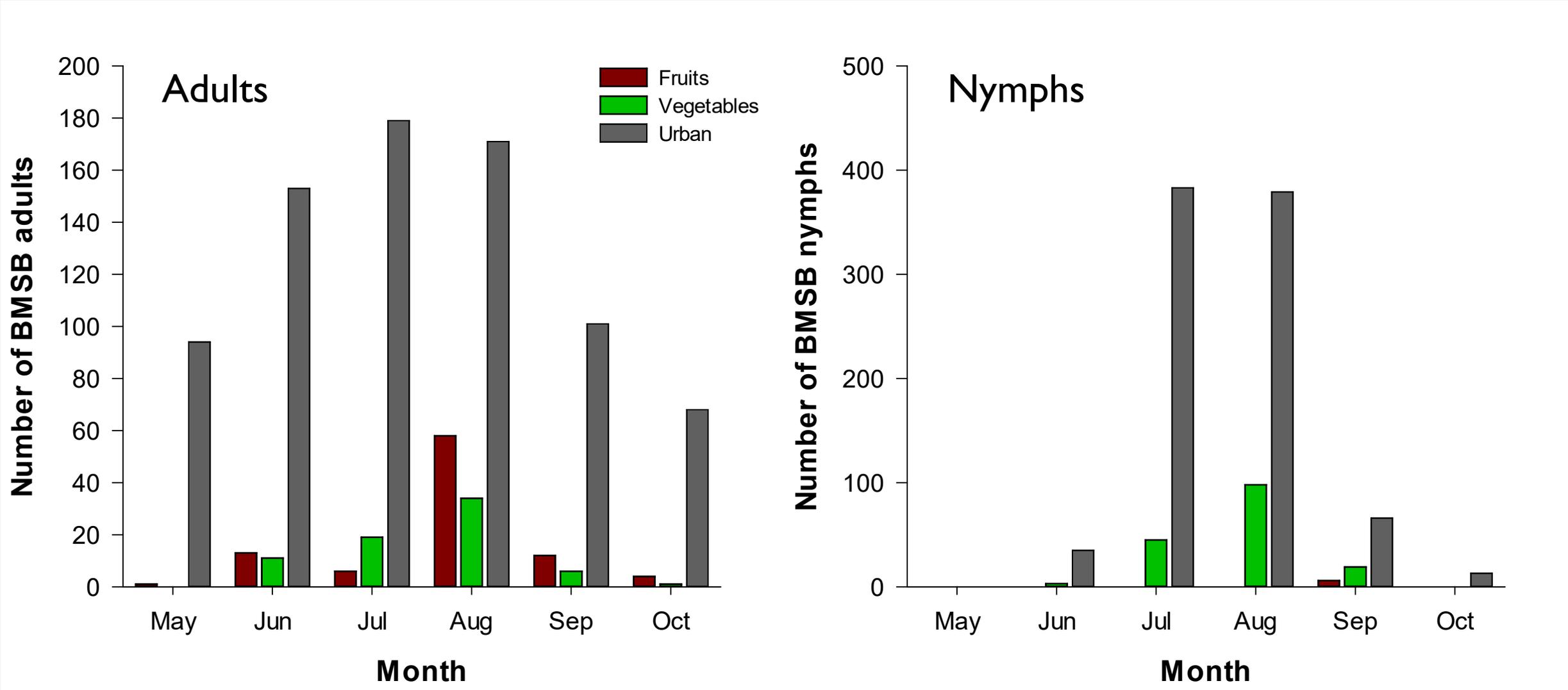
## BMSB Phenology on Tart Cherry



# BMSB Phenology on Catalpa



# COMPARISON OF BMSB POPULATIONS: HORTICULTURAL VS URBAN SITES - 2017



Trap capture in 4 ft Dead-Inn Pyramid Traps baited with Trécé Pherocon Dual Lure; 15 urban sites, 30 each fruit & veg sites

# TRAP EFFICIENCY TRIALS



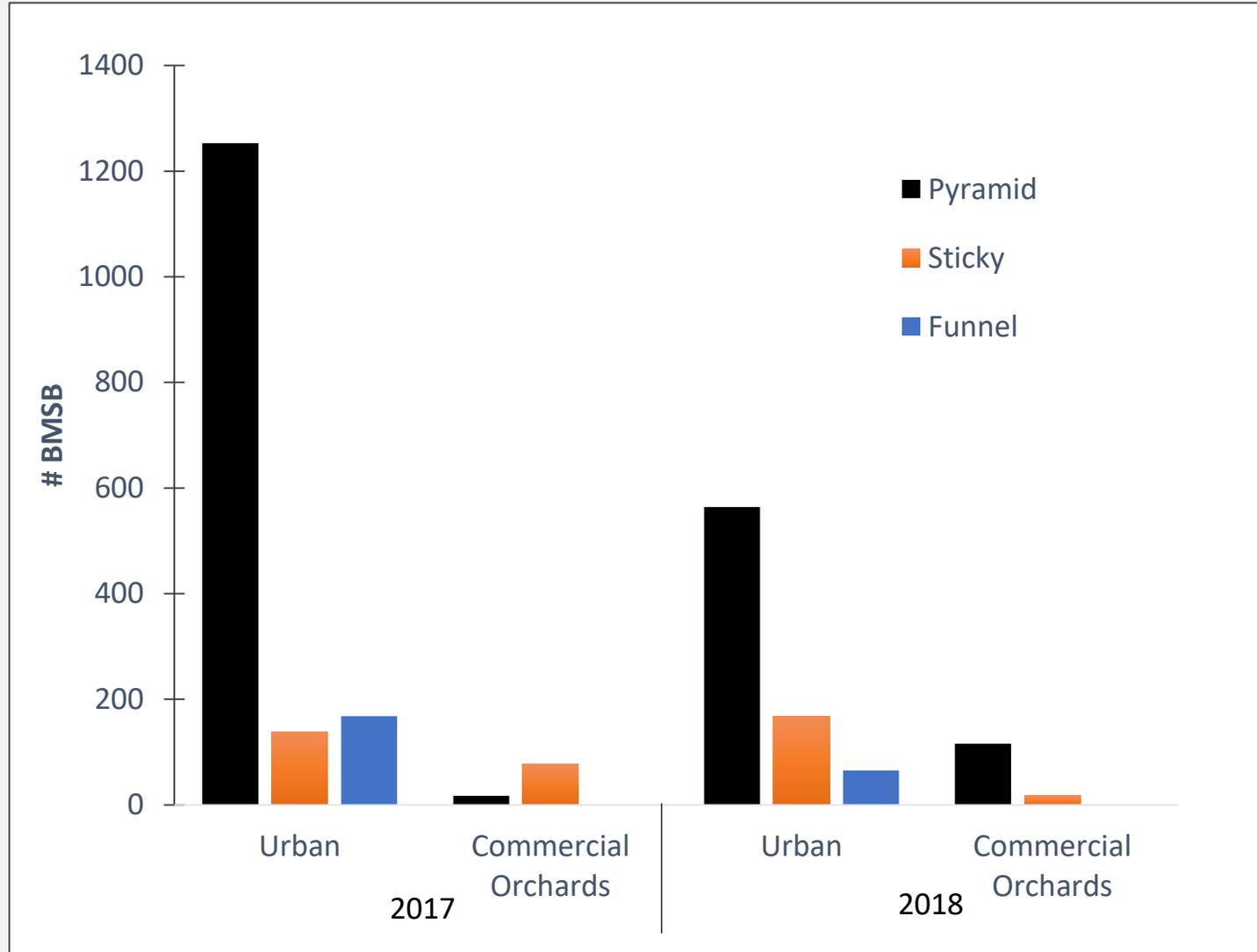
All traps  
baited with  
Trécé  
Pherocon  
Dual Lure  
(BMSB &  
GSB)  
- checked  
weekly

Trécé STKY Dual Panel

AgBio 4 ft Dead-Inn Pyramid

Trécé Dual Funnel (urban sites only)

# TRAP EFFICIENCY RESULTS



# NEXT GEN TRAINING / OUTREACH 2017-18

- 2 graduate & 8 undergraduate students mentored
- 2 BMSB extension publications
- 1 newsletter article (Utah Pests News)
- 5 research conference presentations
- 16 commercial producer and public talks
- 1 grower field day (USH Hort Farm Field Day)
- 4 in-service workshops
- 9 farmers' market displays (booths with hand-outs & interactive displays)
- 1 radio broadcast (Utah Public Radio)
- 3 USU Extension website page additions/updates



**Farmers' Market**



**The End**

# ACKNOWLEDGEMENTS

USDA NIFA SCRI

USDA APHIS PPQ (Farm Bill)

Utah Agricultural Experiment Station Seed Grant

Utah Specialty Crop Block Grant Program

USU Extension Grant



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Specialty Crop Research Initiative

*Collaborating Institutions*

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**OSU** Oregon State University **UNIVERSITY OF MARYLAND** **UNIVERSITY OF GEORGIA**

**OSU** Oregon State University **WASHINGTON STATE UNIVERSITY** **Utah State University**

**IPM Center** **Cornell University** **University of Kentucky**

**RUTGERS UNIVERSITY** **THE OHIO STATE UNIVERSITY** **UC DAVIS**

**UNIVERSITY OF MINNESOTA** **VirginiaTech** **Berkeley**

**UNIVERSITY OF MINNESOTA** **MICHIGAN STATE UNIVERSITY** **UC RIVERSIDE**



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