Measuring Penetration Potential of Invasive Brown Marmorated Stinkbug (BMSB)

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The Insect – BMSB

- Invasive stinkbug from Asia
- Found in California in Sacramento in 2012
- Now has been found throughout the state
- Potentially a serious pest of almonds
- Damage similar to leaf-footed bug but control measures will differ

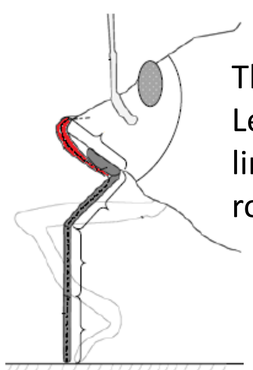
Objective

- Identify critical periods in almond development for kernel damage from feeding by BMSB

Typical stinkbug injury on almond. Symptoms include gumming, kernel damage, and nut drop.

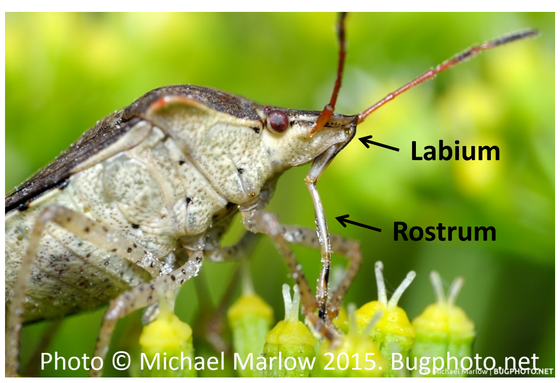
How Stink Bugs Feed

- Piercing-sucking insect
- The visible mouthpart (rostrum) does not enter the host
- Rostrum protects the stylets which are inserted and suck up the food
- Maximum depth that stylets enter is the penetration potential



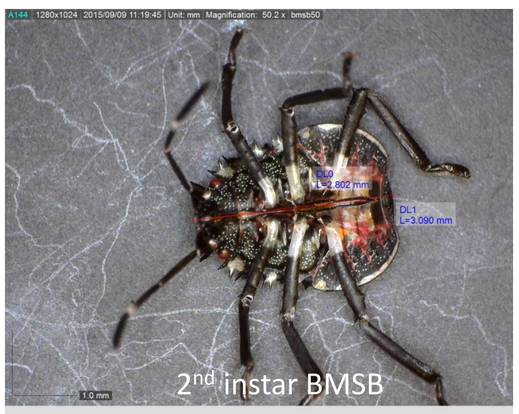
These stink bugs are at rest. Left: the stylets (dotted black line) are protected within the rostrum (grey).

Figure modified from: Esquivel 2011

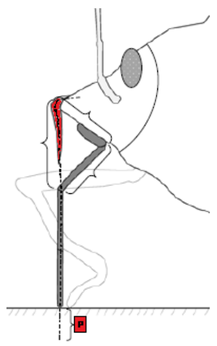


Methods

- BMSB nymphs and adults were obtained from a CDFA lab colony
- The penetration potential of each bug was measured using a microscope camera



Right: when feeding, the labium (red) swings out, forcing the stylets into the host. The maximum the stylets can enter is the 'penetration potential' (labeled P).



Results

- The penetration potential of adult males and females is in the table (right)
- In spring 2016, developing almond fruit will be measured to determine susceptible periods for kernel damage

Stage	Penetration potential
Adult Male	2.39 ± 0.017 mm
Adult Female	2.67 ± 0.018 mm

UC CE University of California Agriculture and Natural Resources Cooperative Extension

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Literature cited: Esquivel, 2011. Ent. Exp. App. 140: 163-170