

2011 Update

Activity of the Invasive Brown Marmorated Stink Bug, *Halyomorpha halys* (Stål), in Tree Fruit



August 9, 2011
USDA-ARS
Appalachian Fruit Research Station
2217 Wiltshire Road
Kearneysville, WV 25430-2771

Mention of trade names or commercial products in this publication is solely for the purpose of providing specific information and does not imply recommendation or endorsement by the U.S. Department of Agriculture.

Summary The brown marmorated stink bug (BMSB), *Halyomorpha halys* (Stål) is an invasive insect native to China, Taiwan, Korea, and Japan introduced into the United States sometime in the mid- to late 1990s that has emerged as a pest of unprecedented importance to agriculture. Currently, BMSB is well established throughout DE, MD, PA, NJ, VA and WV and has been officially detected in 33 states and the District of Columbia. In 2010, BMSB populations increased dramatically and attacked many crops in the mid-Atlantic region. Damage in commercial orchard crops reached critical levels with some growers losing entire blocks of stone and pome fruit. In 2011, overwintering survivorship from human-made structures and from wild or natural overwintering sites was substantial. Significant problems occurred in stone fruit orchards emerging in late May-early June as overwintered adults invaded orchards and fed on immature fruit. Growers who treated with broad spectrum materials at frequent intervals during this primary period of risk had substantially less injury than those that did not. Subsequently, growers who have maintained a vigilant spray schedule have minimized damage whereas those that did not have observed increases in injury. In apple, feeding by BMSB was confirmed to begin early in the season, soon after fruit set. However, apples must reach a stage of maturity before feeding results in economic injury (visibly detectable discolored surface depressions with corky flesh beneath). Economic injury began to appear in mid-late June (depending on cultivar) and BMSB pressure on apples is likely to increase from mid-August through harvest, as the population of BMSB builds and other commercial hosts are harvested or wild hosts senesce. Though growers have been able to reduce injury, this has come at a substantial price due to costs associated with increased insecticide applications and labor.

Current Field Season Observations

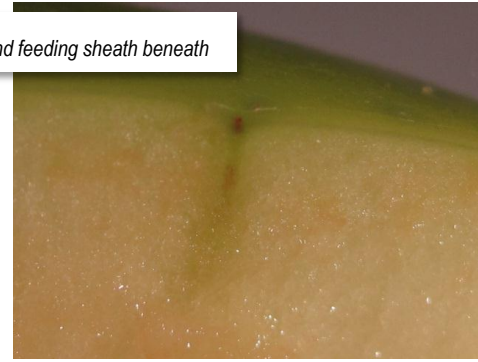
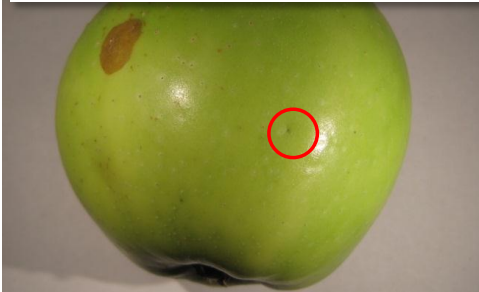
- Offspring (referred to as summer generation) of overwintered adults have reached adulthood and are mating and reproducing a second generation. Summer and second generation nymphs are now present in the field resulting in substantial overlap in generations now present.
- BMSB feeding on apple is now resulting in economic injury (visibly detectable discolored surface depressions with corky flesh beneath). We have confirmed that apples must reach a certain stage of maturity for this type of injury to manifest. Prior to this stage of maturity, injury resulted in a simple discolored dot with feeding sheath beneath.
- Among monitored apple blocks in MD and WV, an average of 13% corking injury is being detected in peripheral areas of blocks (range, 1-33%).
- Growers who have maintained an aggressive spray program with broad spectrum materials have substantially reduced damage, but increased costs associated with this approach will result in substantial economic challenges. This is particularly true for peaches where in 2010, >50% losses were reported by many growers. In 2011, damage has been reduced (averaging 19.5% peripheral areas and 13.6% in the interior region of monitored peach blocks in WV and MD) but has required significantly increased inputs.
- BMSB are still being observed in larger numbers on tree of heaven, white ash, silver maple, *Paulownia* and other woody hosts. Significant numbers have been detected in corn and soybeans throughout the region.
- BMSB adults are beginning to respond to traps baited with methyl (2E, 4E, 6Z)-decatrienate.

Brown Marmorated Stink Bug Diagnostic Photos of Surface and Internal Injury on Apple



Early Season Superficial Injury

Early season feeding results in nominal injury with discolored dot and feeding sheath beneath



Mid-Season Economic Injury

Mid-season feeding results in possible discolored depressions and flesh surrounding feeding sheath appearing corky



Mid-Late Season Economic Injury

Mid-late season feeding results in discolored depressions with larger, corky areas in flesh

