Integrated Pest Management
University of Missouri

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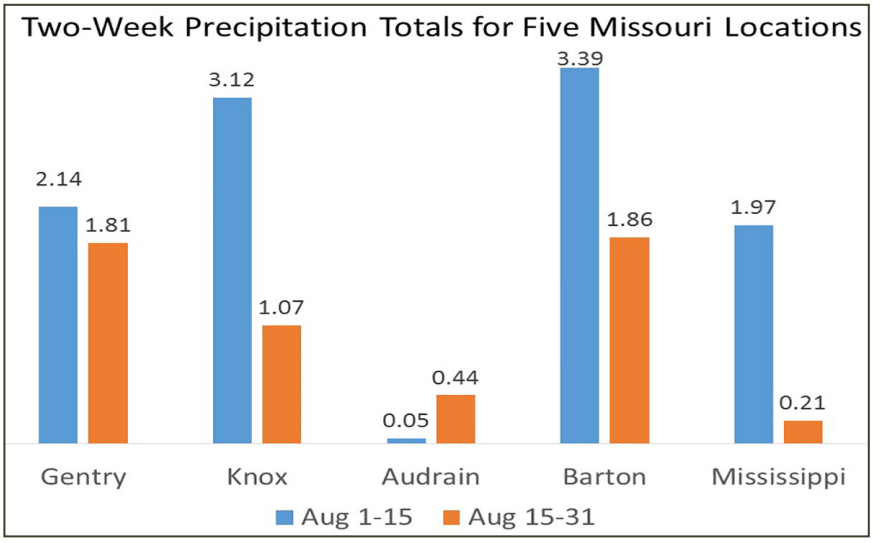
Dry September

by William J. Wiebold

Drought Conditions worsened in September and will affect soybean yield and wheat planting.

Last month I wrote that "wet spring weather is the gift that keeps on giving". My concern was that soil compaction and root diseases that resulted from challenging spring and early summer weather would make our grain crop plants more vulnerable to dry weather if conditions changed in summer and early fall. Unfortunately, August precipitation was less than needed to maintain corn and soybean yield potential in several parts of Missouri. The last two weeks of August were dry enough to decrease crops yields throughout Missouri.

In a normal year, September precipitation has minimal effect on soybean yield except for double cropped soybean after wheat and in some portions of the Missouri where delayed planting is part of a drought avoidance strategy. But, this year I estimate that nearly one million acres of soybean were planted after July 1. Many of these acres have soybean plants that have not matured and would have greatly benefited from normal September precipitation. For good to excellent soybean yields, about 1.2 inches of rain are required each week during grain-fill. Normal September precipitation is greater than 4 inches in most regions of Missouri, except the southeast, so normal would have been welcome.



The graph above presents precipitation amounts for September in five counties distributed among soybean production areas of Missouri. Unfortunately, dry weather continued through the entire month of September. The weather station at Albany (Gentry County) received more than 3 inches of rain on a single day early September. But after that event, NW Missouri was as dry as the rest of the state. Northeast Missouri, including Audrain County, has remained especially dry. This region is more vulnerable to drought stress because soils in a large portion of the region contain a clay-pan that restricts water drainage in spring and reduces root depth throughout the growing season.

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With the delayed maturity of many Missouri soybean acres, normal September precipitation could have repaired some of the damage caused by dry August weather. But, Mother Nature did not cooperate. Four of the five weather stations I selected received less than one-third the normal precipitation in September. The 3+ inch rainfall at Albany was so intense that much of it did not soak into soil. After that event, the weather station received only 0.36 inch of rain. Farmers that planted soybean in July understood their crop was at risk from several challenges. But, the degree of drought in August in September was highly unusual and impossible to predict.

Soybean yields from fields harvested so far have been reasonably high. But, these fields were ones that had been planted in a timely manner. Soybean harvest season will continue for longer than normal because of the wide range in planting dates. Fields harvested in mid to late October will be from fields most affected by our dry late summer and fall.

An additional concern is wheat planting. Farmers should be preparing fields for fall planting of wheat. Although soybean harvest might be delayed, many corn fields have been harvested. Unfortunately, soils are so dry that wheat seeds will not germinate until rain returns. Dry soil is not harmful to wheat seed and seeds will sit in dry sol until sufficient water is available to initiate germination. But, we need a substantial rainfall event, not just a small one. Soil is too dry to support wheat seedling growth throughout the soil profile. A small rain may wet the soil where seed has been placed, but not the area where roots grow. A potential concern is that a return to dry weather shortly after germination could kill young newly sprouted seeds.

Unless normal rain amounts return, water conversation strategies are in order. Although soils are quite hard and depth control may be difficult it is recommended to avoid tillage or limit tillage to conserve soils of precious water. Allowing residue to remain on the surface will help reduce water evaporation and may stabilize soil water if rain amounts are small after planting. As dry as it is, chasing moisture with drill depth may be nearly impossible to accomplish. Stay with an ideal planting depth of 1" to 1.5", it is recommended to not plant over a 2" depth. ■

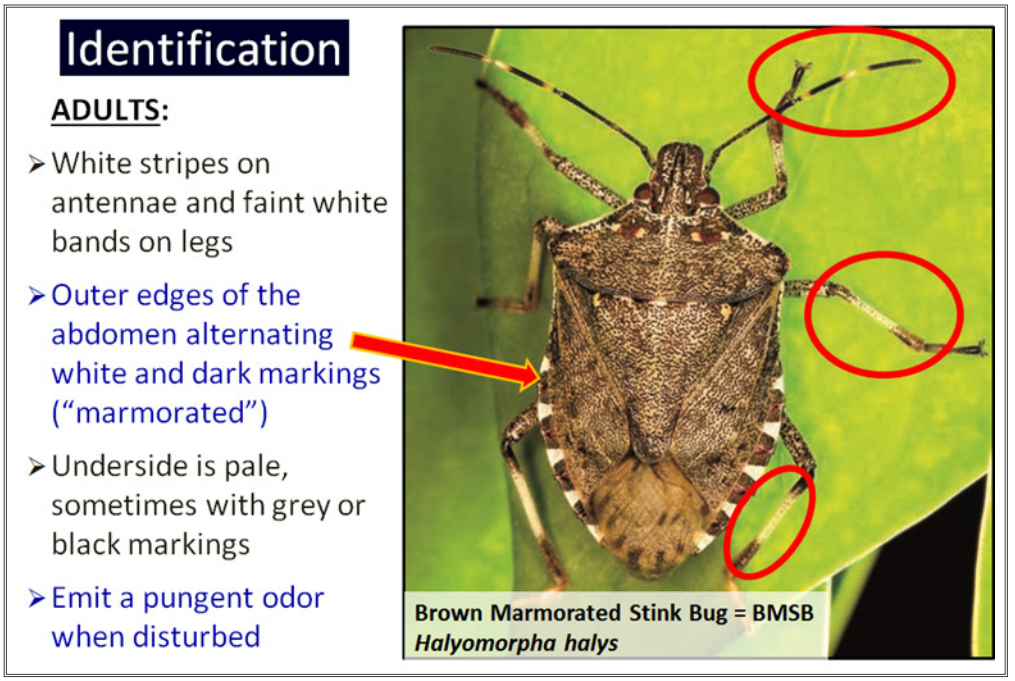
Presence of breeding populations of the invasive Brown Marmorated Stink Bug in Missouri

by Jaime Pinero, Lincoln University

The invasive insect pest Brown Marmorated Stink Bug (BMSB), Halyomorpha halys, was recently introduced into the United States from its native range in Japan, Korea, and China. BMSB is a voracious plant eater that can cause serious economic damage to fruits and vegetables, and to some agronomic and ornamental crops. Preferred fruit crops are peach, Asian pear, pear, apple, cherry, raspberry, grape, and currant. Some agronomic crops that can be damaged by this pest are soybean and corn. Among vegetables, BMSB seems to prefer green beans, asparagus, and peppers. Crabapple, persimmon, catalpa, walnut, maple, basswood, sweet gum, redbud, honeysuckle, and American holly are only some of the ornamental trees / shrubs that can be used by BMSB to feed and reproduce.

Has BMSB become established in Missouri?

The answer to this question seems to be yes, at least for one region in Missouri. As part of a monitoring system deployed by the Lincoln University IPM program, on August 24th, 2015, one BMSB nymph (immature stage) was collected near St. Louis (Ferguson area) using sweep nets. No BMSB adults were recorded on that date in pheromone-baited traps.



On September 28th, 2015, 26 adult BMSB were captured in two pheromone-baited traps in the same location. The presence of both adults and immature stages at a single location is strong evidence that BMSB has become established at least near the St. Louis area. We suspect this might be the case in other regions but pheromone-baited traps have not been deployed state-wide.

Previously, live BMSB had been reported in a few isolated locations. In September, 2014, one live BMSB was captured with net sweep in one farm in Jefferson City, and at about the same time numerous live BMSM adults were reported in urban areas (Chesterfield and St. Louis). In the spring of 2015, a couple of live BMSB individuals were also found in two separate occasions in Springfield, MO.

Our monitoring traps will be removed by early November given that at that moment BMSB will be getting ready to overwinter. BMSB overwinters as adult in natural and human-made structures. In the spring, BMSB adults emerge from overwintering sites (houses, barns, storage buildings, and dead trees) and become active on nearby crops during warm sunny days. Adult BMSB have the capacity to fly more than a mile and some have been shown to have the ability to fly over 31 miles. In the spring and throughout the summer, BMSB adults feed, mate, and lay eggs.

If you spot any suspect BMSB indoors, please make sure to let us know, as this is an indication they may be established in your area.

More information about BMSB identification, monitoring, and management is available at: http://www.stopbmsb.org. ■

Weather Data for the Week Ending October 27, 2015

Station	County	Weekly Temperature (°F)						Monthly Precipitation (in.)		Growing Degree Days‡	
		Avg. Max.	Avg. Min.	Extreme High	Extreme Low	Mean	Departure from long term avg.	October 1-27	Departure from long term avg.	Accumulated Since Apr 1	Departure from long term avg.
Corning	Atchison	67	47	75	34	57	+6	0.41	-1.94	3820	+374
St. Joseph	Buchanan	67	49	79	38	58	+6	0.61	-2.00	3723	+287
Brunswick	Carroll	70	47	84	33	59	+7	1.41	-1.31	3970	+485
Albany	Gentry	66	44	78	32	56	+5	0.57	-1.74	3449	+101
Auxvasse	Audrain	71	50	85	38	60	+7	0.85	-1.87	3812	+262
Vandalia	Audrain	70	49	84	36	59	+7	1.04	-1.42	3773	+284
Columbia-Bradford Research and Extension Center	Boone	70	49	83	39	59	+5	0.81	-1.91	3748	+94
Columbia-Capen Park	Boone	73	46	88	31	58	+4	0.85	-2.08	3751	-34
Columbia-Jefferson Farm and Gardens	Boone	71	50	85	38	60	+6	0.64	-2.10	3898	+232
Columbia-Sanborn Field	Boone	71	52	85	41	61	+7	0.98	-1.85	4095	+301
Columbia-South Farms	Boone	71	49	84	36	60	+6	0.64	-2.14	3847	+188
Williamsburg	Callaway	72	48	87	35	60	+7	1.10	-1.92	3797	+310
Novelty	Knox	68	47	82	37	57	+5	1.36	-1.48	3505	+94
Mosow Mills	Lincoln	71	49	85	35	60	+6	1.37	-1.67	*	*
Linneus	Linn	69	48	84	36	58	+6	1.42	-1.28	3612	+259
Monroe City	Monroe	69	48	85	35	58	+6	0.82	-1.74	3687	+214
Versailles	Morgan	71	50	85	38	61	+6	0.92	-2.21	4048	+283
Green Ridge	Pettis	70	49	83	36	59	+6	0.77	-2.46	3852	+324
Unionville	Putnam	65	47	79	38	56	+5	1.08	-1.83	*	*
Lamar	Barton	71	50	83	37	60	+5	0.86	-2.47	4063	+125
Butler	Bates	70	51	82	39	60	+4	1.17	-1.94	*	*
Cook Station	Crawford	71	48	85	30	60	+5	0.91	-2.05	3731	-11
Round Spring	Shannon	70	47	82	35	58	+4	0.80	-2.30	3619	+34
Mountain Grove	Wright	68	51	81	40	59	+5	1.04	-1.92	3634	+68
Delta	Cape Girardeau	71	50	81	43	61	+5	0.73	-2.65	4023	-133
Cardwell	Dunklin	70	54	83	45	62	+4	2.88	-1.07	4459	-78
Clarkton	Dunklin	71	53	83	44	62	+5	2.33	-0.49	4427	-42
Glennonville	Dunklin	70	54	83	45	63	+6	1.95	-0.79	4463	+30
Charleston	Mississippi	71	53	82	49	62	+6	1.62	-1.66	4414	+215
Hayward	Pemiscot	70	54	81	48	62	+5	2.66	-0.96	4588	+114
Portageville	Pemiscot	71	55	83	52	63	+5	2.72	-1.06	4678	+169
Steele	Pemiscot	70	55	82	51	63	+5	2.85	-0.72	4534	+13

‡Growing degree days are calculated by subtracting a 50 degree (Fahrenheit) base temperature from the average daily temperature. Thus, if the average temperature for the day is 75 degrees, then 25 growing degree days will have been accumulated.

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