A Crazy Summer: What Impact Will The Unusual Summer Have On Insects?

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A crazy summer is probably a huge understatement for many of you, and most of you are likely glad it is finally over! There was little to nothing about this year was anything like "normal." We jumped right-out of the gate in the spring with above normal temperatures, and it seemed to literally never let up with extremely high temperatures and little to no rain for what seemed like months. Initially, many insect populations appeared to be several weeks ahead of a typical year. And then the rain stopped and drought conditions began to manifest.

Just like we humans, insects are highly dependent on water for survival. Without adequate water, insects have little chance for survival. So, for those who kept the water flowing to keep your turf alive, unfortunately by default, you created a hospitable environment for insects and increased your risk for insects infesting your turf than those that choose to allow their turf to go into summer or drought dormancy.

This is especially the case for white grubs such as the Japanese beetle; they prefer low-cut turf that is irrigated! To this end, this fall I have observed areas of turf, where no insecticides were applied and were irrigated throughout the growing season, that were infested with white grubs. To make matters worse, these grub-infested areas also experienced extensive vertebrate feeding damage due to the presence of the grubs, animals such as skunks, raccoons and even turkeys wreaked havoc by ripping-up the turf in search of grubs.

Insects are biological organisms; factors including temperature and moisture contribute to their development and populations. They are cold-blooded animals that are dependent on temperature; most insect species are inactive at temperatures below 50 F⁰ and above 100 F⁰. Because we experienced relatively high temperatures (around 100 F⁰) and we received little to no rain around the time that Japanese beetle adults laid their eggs, most Japanese beetle eggs did not hatch or even survive unless the turf was irrigated. Japanese beetle eggs require adequate moisture to become hydrated and hatch, the gestation period is typically between 3-6 weeks. Despite the fact that Japanese beetle adults emerged about 2 weeks earlier than normal, the development of larvae (grubs) was delayed due to the lack of soil moisture and high temperatures where irrigation was not supplied.

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As far as the impact that this crazy summer has on your management approach of Japanese beetle grubs goes, so long as you made a preventative insecticide treatment (in irrigated turf areas) before or around egg hatch, you should be well protected from damaging grub populations. In the event that you elected to forego a preventative grub control (insecticide) application, and the turf was not irrigated, the likelihood or risk of grub damage would have been quite low.

However, for those areas of turf that were irrigated or somehow were fortunate enough to receive rainfall, but were not treated with a preventative insecticide, they were at a much greater risk of having grubs and likely experienced vertebrate animal feeding damage. As a result, curative or rescue insecticide treatments were probably needed to reduce the grub populations and damage to an acceptable or tolerable level.

Unfortunately, white grubs are much more difficult to control curatively or correctively compared to preventatively. Most curative (rescue) white grub insecticides have a relatively short-residual activity (< 15 days) and typically provide around 50-75% control while preventive insecticides have rather long-residual activity (> 100 days) and consistently provide > 90% control. For this reason, it is important to routinely inspect the turf for the presence of young larvae so that maximum control can be achieved.

Wisconsin Weekly Weather, Selected Cities, Ending as of 7:00 a.m. on September 23, 2012

City	Temperature						Growing degree days (modified base 50) 1/		Precipitation				
	Avg. max.	Avg. min.	High max.	Low min.	Avg.	Avg. dep. from normal *	Mar. 1 to Sep. 22	Mar. 1 To Sep. 22 normal*	Last Week	Since Sep. 1	Sep. 1 dep. from normal *	Year to date	Year dep. from normal *
Eau Claire	66	41	82	34	53	-5	3057	2374	0.23	1.02	-1.98	20.17	-6.02
Green Bay	66	40	79	32	53	-5	2939	2240	0.41	1.09	-1.33	23.02	+0.46
La Crosse	67	44	78	39	56	-6	3347	2674	0.16	1.14	-1.15	20.13	-6.01
Madison	67	43	76	34	55	-5	3274	2624	0.43	1.33	-1.13	18.30	-7.84
Milwaukee	67	47	77	39	57	-5	3152	n.a.	0.74	2.31	-0.25	22.16	-4.53

1/ Formula used: GDD = (daily maximum (86°) + daily minimum (50°))/2-50°; where 86° is used if the maximum exceeds 86° and 50° is used if the minimum falls below 50°. *Normal based on 1971-2000 data. Source: NCEP/NOAA Climate Prediction Center http://www.cpc.ncep.noaa.gov.
n.a.=not available. T=trace. Source: USDA, NASS, Wisconsin Field Office.

The information from the United States Department of Agriculture, National Agricultural Statistics Service shows growing degree days well above normal through September 22 while in most cases precipitation was well below normal.