

Kansas Insect Newsletter

For Agribusinesses, Applicators, Consultants and Extension Personnel



Department of Entomology
123 West Waters Hall
K-State Research and Extension
Manhattan, Kansas 66506
785-532-5891
<http://www.entomology.ksu.edu/extension>

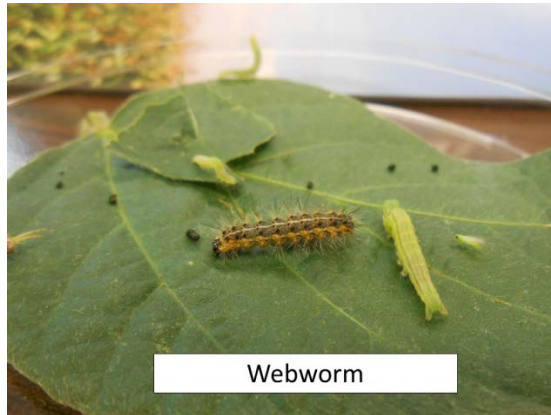
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Soybean Pests

Sampling soybeans has revealed a few pests but nothing to be worried about-- yet, at least in central KS. We are finding some green cloverworms (see picture), in different stages of development. This means there will probably be green cloverworms feeding in soybeans for the next 3-4 weeks as the worms mature at different times. Probably, the earlier-planted beans that are in the R3+ stages will not have enough worms to cause enough defoliation to have a detrimental impact on the beans. But many of the double-cropped beans have been developing slowly due to cloudy weather, and if these moths (see picture) lay eggs in these later planted fields they may cause considerable defoliation. Remember, the green cloverworm will feed on vegetative parts of the plant and not the pods or beans inside the pods. Also, after worm populations build up, often there is a white fungus that infects them and can effectively control them. The populations we have seen so far, however, probably are not enough to initiate a fungal rescue. But, if you are seeing these worms and noticing defoliation, don't be too quick to treat as soybeans can withstand quite a lot of defoliation without negative effects.

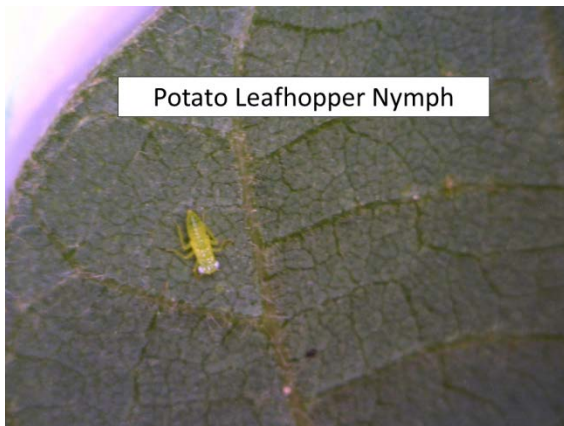


Also, we are finding some webworms (see picture) in soybeans. Again, not enough to worry about yet, but there is probably another generation of worms coming, and again, they may be most attracted to the later planted, double-cropped beans. So just a "heads up" for these two defoliators, and there may also be some woolly bear caterpillars in some of these fields but they also are defoliators and won't feed on the pods/beans.



Potato Leafhoppers in Alfalfa

Checked a couple of recently swathed alfalfa fields and found an alarming number of potato leafhoppers, both adults and nymphs (see photos). Swathing usually removes these little pests but apparently they came into these fields after the hay was cut, and to be fair, these fields were swathed about a week ago. But please continue to monitor these alfalfa fields as potato leafhoppers may damage the current crop and set back development for future crops. They are very easily controlled by any of the registered insecticides but you do need to get out and sample these fields asap.

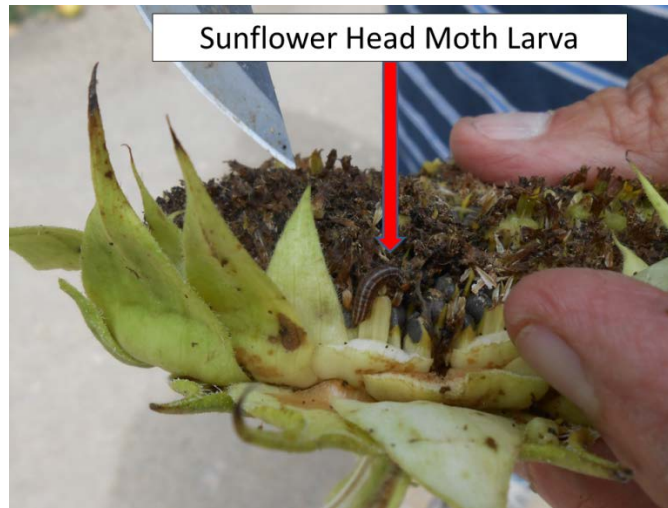


Sunflower Head Moth Larvae

We have seen fewer sunflower head moths this year in central KS than I can ever remember. However, the larvae we found this week (see photo) are mature and will soon be pupating, so if there are late planted flowers, sunflower head moth larvae will probably be ovipositing in another 7-10 days.

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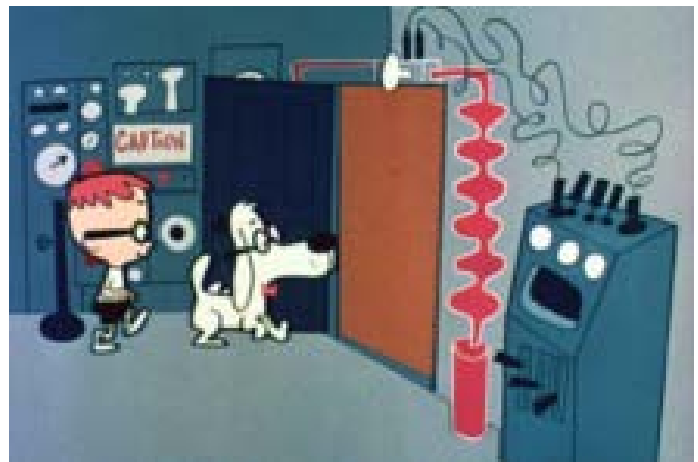
Jeff Whitworth

Holly Davis

The WABAC Machine

Well I'm going off the deep-end again. Seems that the older I get, the more "current-day" items have me traveling back-in-time. And the WABAC Machine popped into my head. Probably most readers will be wondering, "What is the WAYBAC Machine?"

Those of you who were old enough to be watching TV in 1959 will recall the Rocky and His Friends program. One of the segments featured a Genius Dog, Mister Hector Peabody. Playing off the phrase, A Boy and His Dog, this was about A Dog and His Boy. Mister Peabody adopted his "pet boy" Sherman. In episodes of Mister Peabody's Improbable History, Sherman was allowed to witness, participate and sometimes alter historical events by stepping into the WAYBAC Machine to be transported back in time.



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I received an e-mail earlier this week from Glenn Newdigger, CEA ANR in Stafford County. It began “I know that this is not an insect, but you helped me id something similar to this about 20 years ago”. (aside ---- believe that I would set my WABAC Machine closer to 25 years ago).



Some things you do not forget. Glenn was a “newbie” CEA ANR in Medicine Lodge. There was a community event which included Mud Volleyball -- - a purposely flooded piece of ground serving as a volleyball court. During the event, “strange creatures” were found. They were tadpole shrimp. Now a CEA ANR working out of St. John, Glenn

visited a school in Macksville ---- and the teacher asked Glenn if he knew what the strange creature brought in by a student who found it in a muddy pool of water was. Long story short, Glenn recalled seeing these back in Medicine Lodge. **Tadpole shrimp!**

Why would we be addressing tadpole shrimp in an insect newsletter? Aren't tadpoles more associated with vertebrates such as amphibians? While the latter question would be answered with a “Yes”, tadpole shrimp are taxonomically included in the subphylum Crustacea under the phylum Arthropoda which includes a wide array of invertebrates. Under the Arthropod “umbrella” then, tadpole shrimp (like sowbugs/roly polys/pillbugs, crawdads, lobsters, crabs, shrimp) are often times referenced as being closely related to insects.

Tadpole shrimp are sometimes referred to as aquasauers. This stems from their existence in aquatic environments since their ancient origin/presence in the Triassic Period (250 – 200 million years ago) of the Mesozoic Era. This predates them from “traditional dinosaurs” (think *T. rex*) associated with the Cretaceous Period 145 – 65 million years ago which closed out the Mesozoic era. Tadpole shrimp are (perhaps then) rightly referred to as living fossils. Now as then, tadpole shrimp live in aquatic environments, and their form remains unchanged.

Some tadpole shrimp reportedly reach 4-inches in length. The tadpole shrimp reported by Glenn measured 1½ inches in length. The carapace-covered head and thoracic area, and the exposed abdomen measured 1-inch. The remaining ½-inch is the caudal ramus --- a characteristic feature of primitive crustaceans.

Where and when are tadpole shrimp likely to be encountered? Tadpole shrimp are associated with temporary aquatic environments/ponds/pools. Lacking favorable conditions, tadpole shrimp persist in a state of suspended animation as “resting eggs”/cysts. In this resting state, eggs retain viability over several years to decades. Only under certain conditions will embryonic tadpole shrimp larvae emerge from eggs. While one would think that commonly occurring heavy rains be adequate to stimulate emergence, rain and moisture run-off quickly dry up.

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Again a requisite is the formation of temporary ponds and pools. That combined with proper water temperature seem to be the two critical factors for creating the required environment.

Given the precarious nature of temporary/short-lived habitats, tadpole shrimp have an accelerated developmental life cycle. Perhaps oversimplified but adequate for our purposes, within 1-3 days, eggs will hatch. The newly emerged larva (termed a metapauplius) rapidly develops through a series of molts. Within a 24-hour period, they attain the adult form. By a week's time, they are fully mature and capable of reproducing.

Within a species of tadpole shrimp, there can be variations in the mode of reproduction. Apparently some populations may consist of males and females, other populations of hermaphroditic forms capable of self-fertilization, or (as best I can make out) a mixture of male and hermaphroditic. Whatever the exact scenario, "resting eggs"/cysts are produced. The cysts remain viable, able to withstand dry conditions and both cold and hot temperature extremes (for the aforementioned years to decades) until the reoccurrence of favorable conditions (formation of temporary ponds/pools).

Tadpole shrimp are "general feeders", subsisting on living plants and microscopic animals, as well as detritus (nonliving organic matter). Using their carapace, tadpole shrimp stir up bottom sediments to "release/expose" their food. In rice production areas, this stirring activity will uproot rice seedlings. Additionally, tadpole shrimp directly feed on/destroy seedlings. Lastly, digging activities associated with food gathering and egg laying causes turbidity which reduces light penetration resulting in growth retardation of submerged seedlings. Thus pest management guidelines have been developed to combat tadpole shrimp interfering with rice production.

In Kansas, tadpole shrimp are more of a curiosity. There is no predicting when and exactly where they will be encountered. They probably are more common than we might suppose. Encounters are more circumstantial ---- a matter of being in the right place at the right time to observe tadpole shrimp in-the-wild. I say, "... In the wild.", because there are on-line sources through which eggs and kits can be ordered to rear and observe tadpole shrimp at home or in the school room.

Bob Bauernfeind

Diagnostic Laboratory Report

<http://entomology.k-state.edu/extension/diagnostician/recent-samples.html>

Eva Zurek

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Sincerely,

Robert J. Bauernfeind
Extension Specialist
Horticultural Entomology
phone: 785/532-4752
e-mail: rbauernf@ksu.edu

Jeff Whitworth
Extension Specialist
Field Crops
phone: 785/532-5656
e-mail: jwhitwor@ksu.edu

Holly Davis
Research Associate
Phone: (785) 532-4739
e-mail: holly3@ksu.edu

Eva Zurek
Insect Diagnostician
Phone: (785) 532-4710
e-mail: ezurek@ksu.edu



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Kansas State University Agricultural Experiment Station and Cooperative Extension Service

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