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## Kansas Insect Newsletter

For Agribusinesses, Applicators, Consultants, and Extension Personnel

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### “Old Faithful(s)”:

Travel to Yellowstone National Park and view “Old Faithful” ..... one of nature’s very predictable/dependable natural wonders. One need not leave Kansas to view a different “Old Faithful” ..... the **European pine sawfly (EPS)**. Year in and year out, EPS activities predictably begin towards latter March. Overwintering as eggs deposited in needles the previous fall (Figures 1 & 2), eggs rapidly develop in spring as evidenced by swelling (Figure 3), with larval emergence soon following (Figure 4).



Figure 1  
Eggs in needle

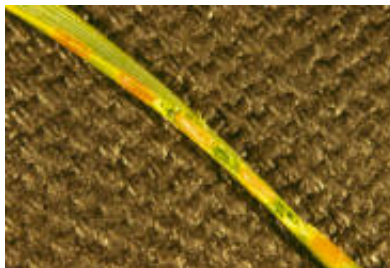


Figure 2  
Exposed eggs



Figure 3  
Swollen eggs



Figure 4  
Emerging larva

The first observed larval hatch (in Manhattan) was recorded on March 30. It is quite likely that the hatch may have begun earlier “further south” in Kansas where yearly activities typically begin several days to a week earlier. While only several larvae emerge at “first hatch”, the remaining hatch occurs in rapid fashion ---- being completed (approximately) within a week to 10 days. Unless one was closely observing/monitoring egg development, the presence of larvae goes undetected if viewed from afar (Figure 5). However, despite their current small size, they can easily be detected. Larvae cluster around individual needles. The glistening sunshine off of their black head capsules helps aid in their detection (Figure 6). Due to their small size, larvae consume the more tender portions of needles (Figure 7), leaving behind the tougher main rib. An indicator of their current feeding, then, is the appearance of brown and twisted needle clusters (Figure 8).

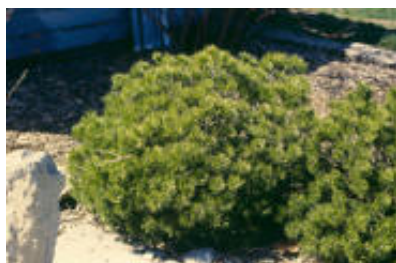


Figure 5  
Mugo pine



Figure 6  
“Glistening” head capsules

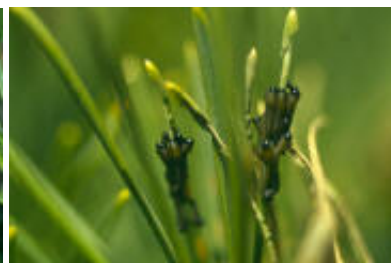


Figure 7  
Clustered larva

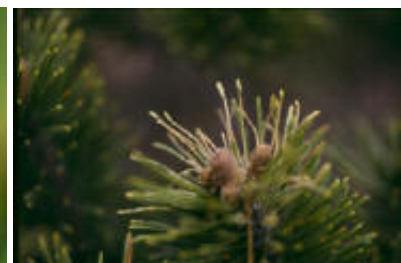


Figure 8  
Feeding damage

Feeding exclusively on pine, EPS pose no threat to other evergreens such as eastern red cedar, juniper, spruce or hex yew. EPS larvae are very susceptible to several insecticides marketed through retail outlets. For people seeking a “softer” chemical, insecticidal soaps and horticultural oils both provide effective kill.

## “Cabbageworms”:

The flurry of “white stuff in the air” invokes thoughts of snow — except that temperatures are in (at least) the 60-degree or greater range. Plus, snow falls one direction — down — whereas the white-of-spring flutters up and down and around. The **imported cabbageworm butterfly** (Figure 9) is an “early bird” by virtue of its overwintering in the chrysalis stage (Figure 10) found under a protective layer of debris/trash littering the soil surface. Impending emergence of the butterfly is evident by its identifiable presence as viewed through the transparent “skin” of the chrysalis (Figure 11).



Figure 9  
Butterfly

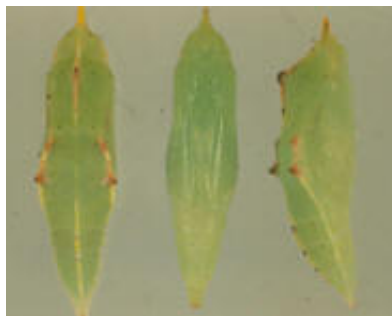


Figure 10  
Chrysalis



Figure 11  
Transparent chrysalis

Having been recently transplanted, cole crops (in gardens) currently are relatively small (Figure 12). Plants can easily be inspected for the presence of columnar-shaped yellow eggs primarily deposited on lower leaf surfaces (Figure 13). After emerging, small larvae begin feeding. They do minimal damage to foliage while small (Figure 14). However, larval development proceeds at a rapid pace, with increased amounts of damage accompanying each larger developmental stage (Figure 15).



Figure 12  
Small transplant



Figure 13  
Eggs



Figure 14  
Small larva



Figure 15  
Developmental stages

Large larvae are voracious feeders, consuming much leaf tissue (Figure 16) as they near the end of their feeding cycle. While foliar feeding may be deemed inconsequential, larvae also feed on those portions of the plant intended for harvest. Thus a head of cabbage, for instance, may be riddled by foraging larvae. Their presence (and accompanying fecal deposits) decrease the marketability harvested produce (Figure 17). Not that heads are totally unusable — water can be used to wash off larvae and flush away fecal deposits. The remaining “head” is edible.



Figure 16  
Large larva



Figure 17  
Infested cabbage

Imported cabbageworm butterflies are continually present through the cool springtime season during which cole crops production “is at its best”. Therefore, all sizes of imported cabbageworms may be simultaneously present. Cabbageworms are easy to control with if gardeners are on the continual alert for their presence. Any number of insecticides are registered for use against all “cabbageworms”. The “organically acceptable” *Bacillus thuringiensis* is also effective against cabbageworms. It must first be consumed by larvae in order for its mode-of-action to kick in. However, due to ultraviolet light sensitivity, the active component of Bt products rapidly degrades under field conditions. Thus, in the continued presence of lepidopteran pests throughout the production period, repeated applications of *Bacillus thuringiensis* are required to suppress cabbageworm populations.

Bob Bauernfeind

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Sincerely,

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