

Managing to Minimize the Impact of Slugs in the 2020 Growing Season

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Several farmers and farm supply representatives have called asking about slug feeding pressure for the 2020 growing season. The recommendations below are a little “long winded” but hopefully you will appreciate all of the information.

Recommendation #1: Don’t spray pre-plant insecticide. For many years Extension Entomologists have stated that spraying pre-plant insecticide is not helping anything. It does not kill wire worms, seed corn maggot, western corn rootworm larvae, or grubs. It may reduce black cutworms if the cutworms happen to be present when you spray. Also our incidence of black cutworm has been extremely low. At least 1,000 acres of corn has been scouted each year in the northern Shenandoah Valley each year for the past 15 years (likely more than 2,000 acres). Black cutworm damage has been found in two different fields during that time. The data summarized below clearly shows that spraying pre-plant insecticides is increasing slug feeding injury.



Image 1. A Slug Feeding on a Seedling Soybean

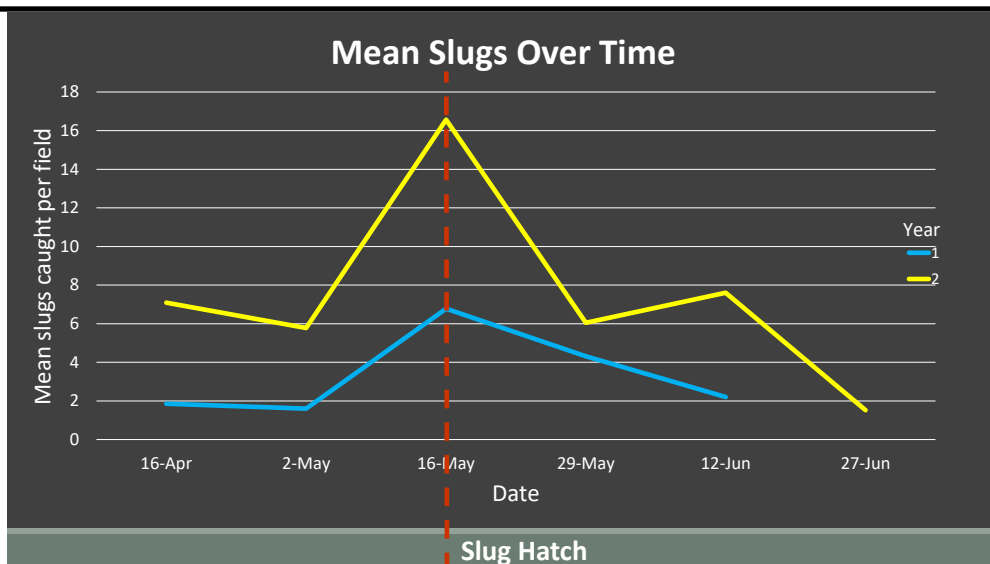
Recommendation #2: There are several Extension people and practitioners who theorize that mild winters result in higher numbers of slugs than real cold winters. The data shown in **Graph #1** is consistent with this theory (but it is still just a theory). The winter of 2019/2020 has been very mild. Thus, if your normal program is to disk or vertical till your ground as part of your slug management; then you might want to consider sticking with this program in 2020. If you are a long term no-tiller then just hang in there and keep no-tilling. Hopefully, your population of beneficials is strong enough to minimize the damage.

Recommendation #3: Plant corn early and/or do what you can to facilitate rapid seedling growth. If weather permits early planting; try to plant early. Slug feeding typically begins about May 3. Often I see early planted fields reach V-3 (5-6 inches tall corn) prior to the beginning of slug feeding. Anything farmers can do to facilitate rapid growth is helpful. Soybean crops are more difficult. Ultra early soybeans are subject to frost. The best approach is to plant soybeans late enough so that they emerge quickly and continue to grow rapidly. Typically, we see soybeans planted prior to May 15, tend to emerge a little slower than soybeans planted after May 15 and are more subject to stand loss.

Graph 1. Mean Slugs Over Time

This Graph shows the number of slugs per field in year 2018 (blue bar) and 2019 (yellow bar). The graph shows there were more slugs in 2019 than 2018. The winter preceding 2018 was a very cold winter and winter preceding 2019 was less cold than 2018.

We theorize that very cold winters are killing slug eggs that normally survive (or at least more slug eggs survive winters that are more mild).



Recommendation #4: Check with your seedcorn supplier and your crop insurance representative on re-plant policy. That way if you need to re-plant; you are in a better position to act.

Recommendation #5: Check on options of slug bait applications. To date, the only product that consistently shows good efficacy is “metaldehyde.” It is sold under the Trade Name; Deadline®. It comes in both a mini-pellet and a granular product. Consider having your slug bait spreader hooked to your four wheeler the day you plant corn and have a few bags of bait on hand to address problem areas. Also, several farmers have had good luck spreading slug bait with dry sidedress nitrogen.

A Quick Overview of Some of the Latest Research on Slug Management

In year 2019, we completed a two-year research project to evaluate how different management strategies impact slug feeding pressure in corn and soybean crops. The study included scouting 8,200 acres of corn/soybean crops to assess slug injury; and an intensive evaluation of both beneficial insects and actual slug numbers on 44 different fields. All of these fields were located in Northern Shenandoah Valley.

There are three major findings from this study.

Finding #1: There is a strong population of beneficial insects in many Northern Shenandoah Valley fields. This is significant, because we now know we do not need to import beneficial insects (for example when brown marmorated stinkbugs first arrived in the United States; there was no known predator). **Image #2** shows the types of beneficial insects found in those 44 fields.

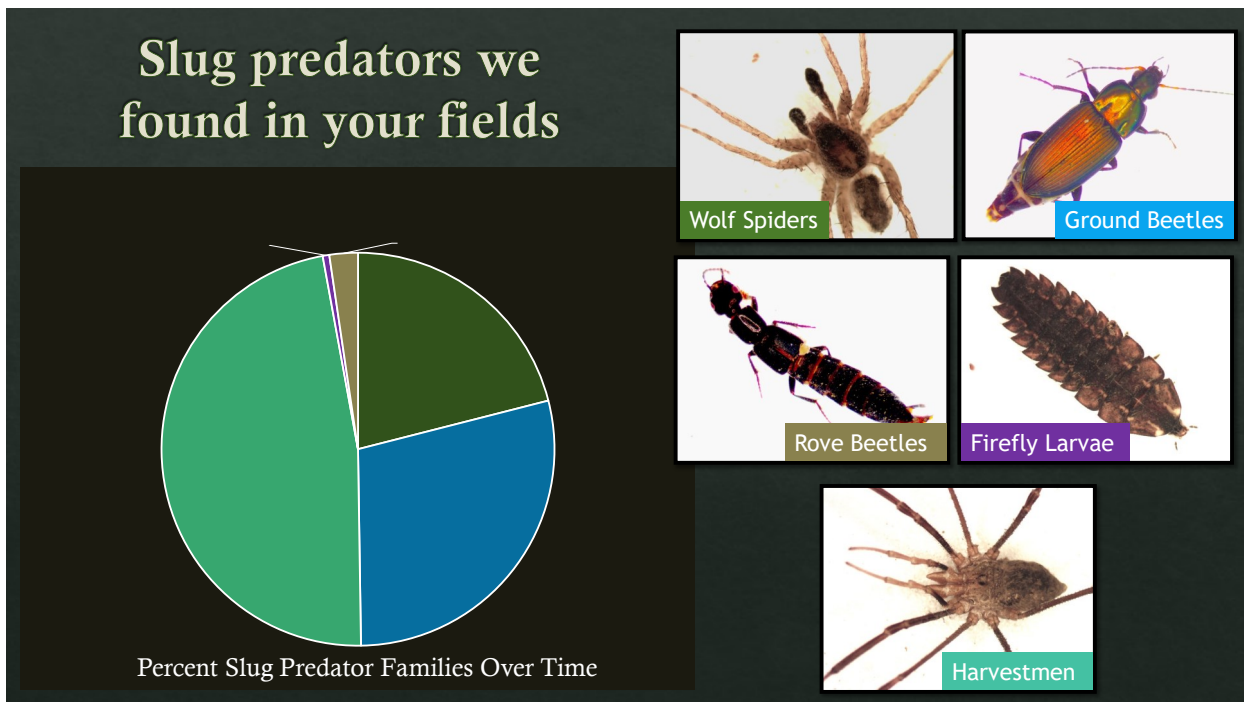
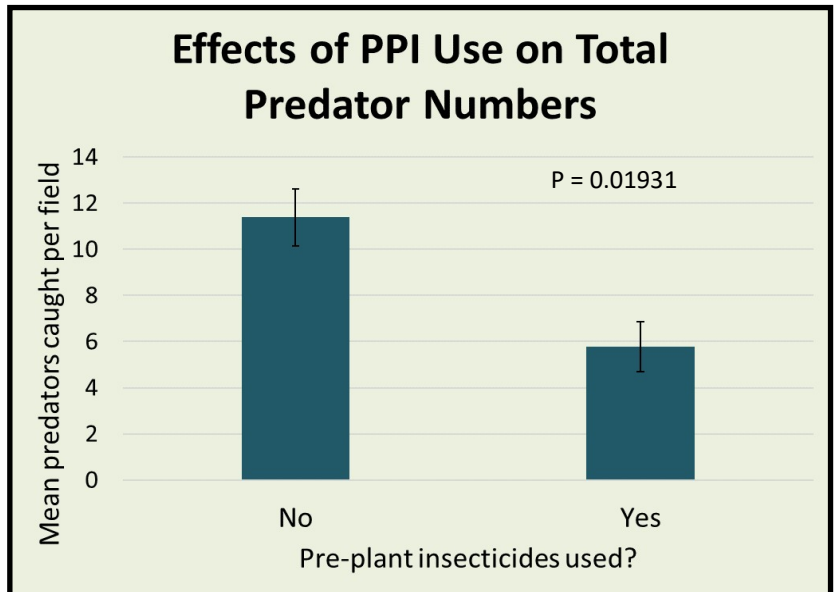


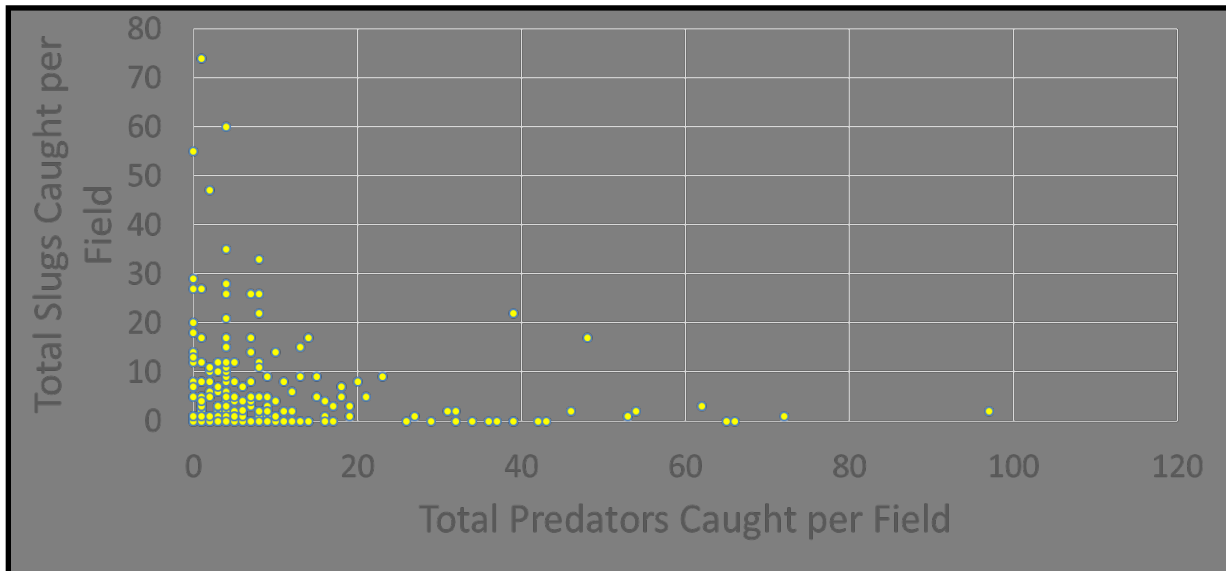
Image 2. *Slug Predators Found in Northern Shenandoah Valley Crop and Soybean Fields (2018 and 2019 data)*

Finding #2: The study attempted to find a cropping system (a crop rotation or a type of cover crop) that led to either more/less beneficial insects or more/less slug injury (or both). This particular study did not find any cropping system (crop rotation, type of cover crop) that lead to more or less slugs.

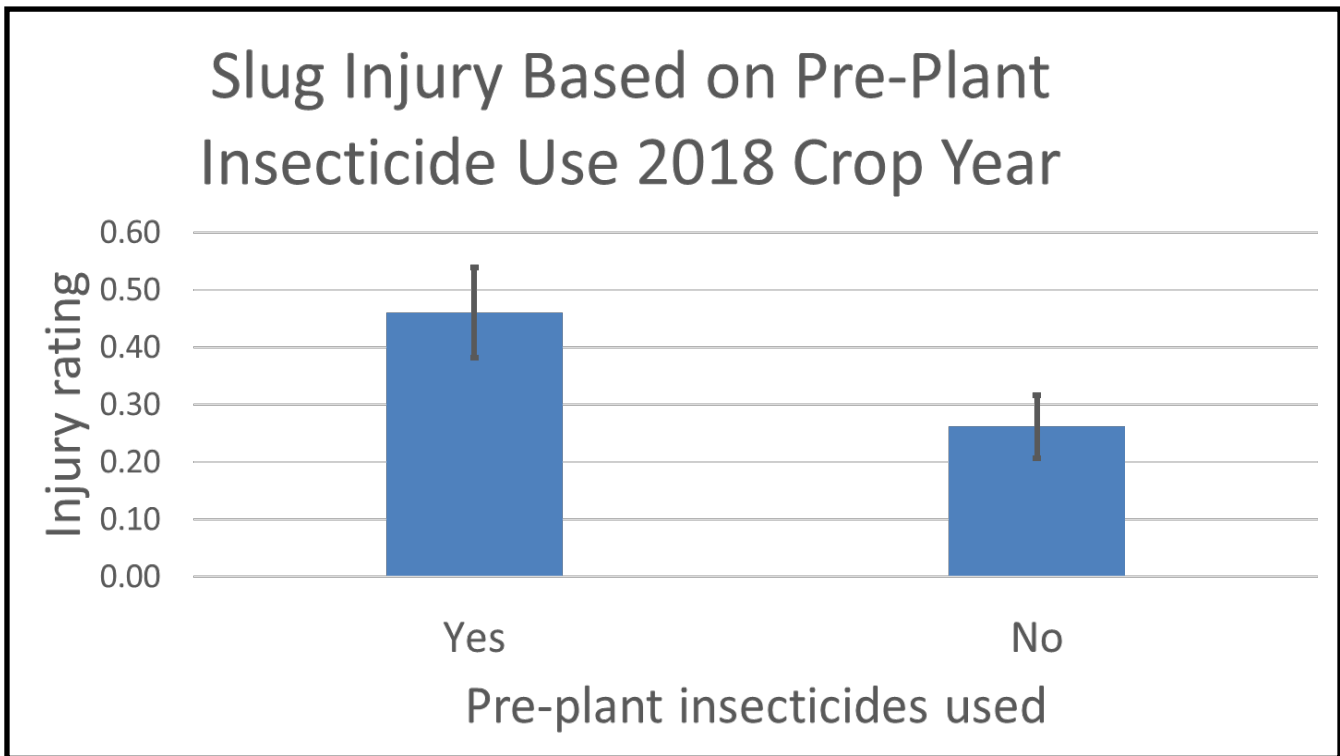
Finding #3: Data from this study (and prior studies) shows that the use of pre-plant broadcast insecticides (i.e. insecticides that are applied with herbicides prior to planting or prior to crop emergence) is: reducing the number of beneficial insects; resulting in a higher population of slugs and in some years is resulting in a higher incidence of injury in corn and soybean crops. **Graphs 2, 3, 4, and 5** show data collected from fields in the Northern Shenandoah Valley that indicate this conclusion.



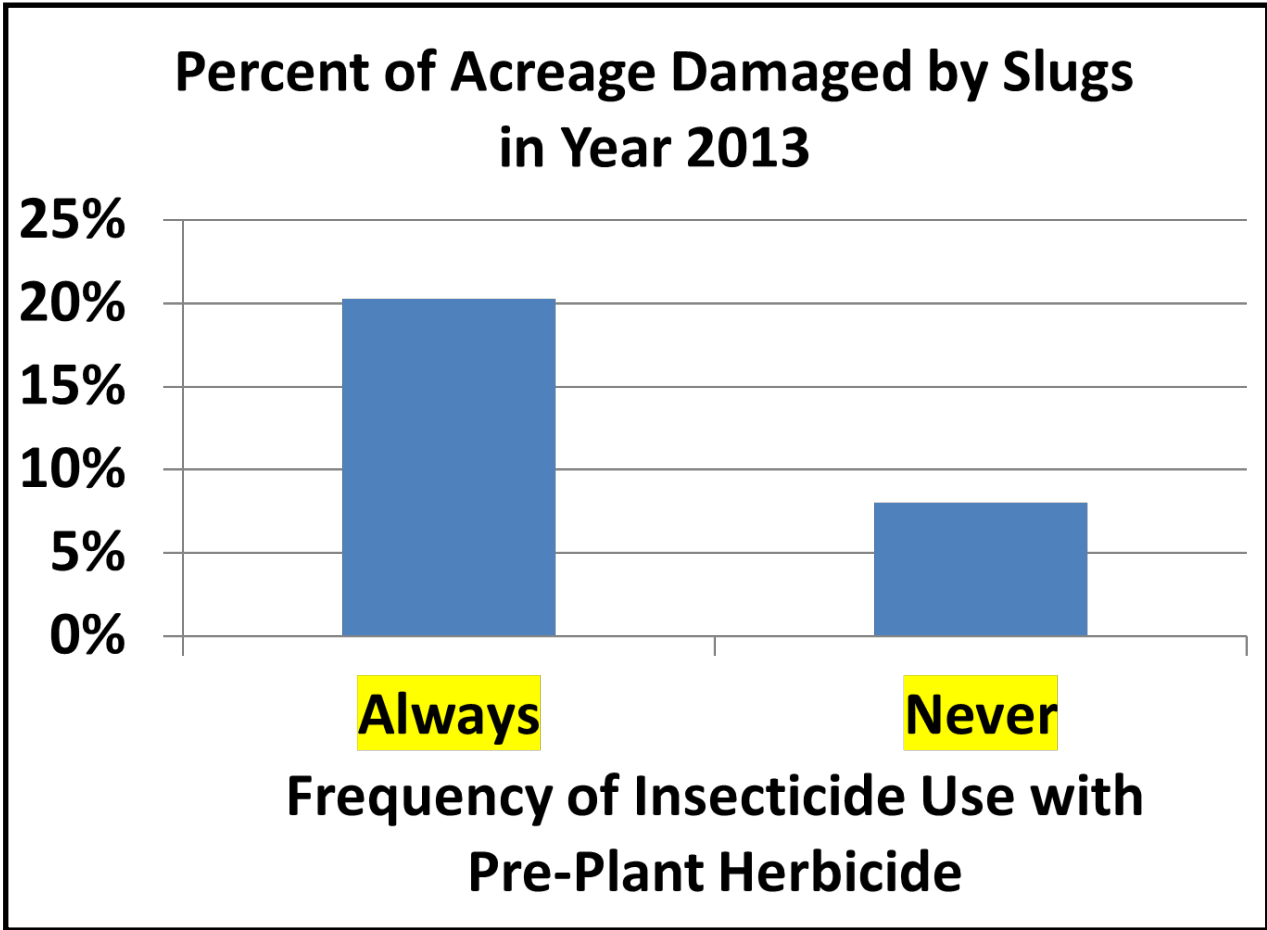
Graph 2. Effects of Pre Plant Insecticide Use on Total Predator Numbers (2018 and 2019 data)



Graph 3. Total Predators Caught Per Field Compared to the Total Number of Slugs Caught per Field (2018 and 2019 data)



Graph 4. Slug Injury in Fields during 2018. This data represents corn and soybean fields that were scouted and slug injury rated using a numerical rating system as described in the slug scouting guide.



Graph 5. *Percent of Fields Damaged by Slugs in Year 2013.* This data represents 12,608 acres of corn and soybean crops in year 2013. The definition of the word “damaged” is: fields that likely experienced some stand loss in year 2013 due to slug feeding pressure.

A special thank you to Kirsten Birchler, Graduate student for all of the work she did to generate the 2018 and 2019 data in this document.