



2019

***Monitoring Pea Weevil
(*Bruchus pisorum*) in
Pulse Crop(s) Results***

Washington State University Extension



Pea Weevil (*Bruchis pisorum*) Insect Sampling Report: July 26, 2019

Overview: Washington State University began conducting weekly sampling of Pea weevil (*Bruchis pisorum*) in pea fields throughout the dryland region of Washington State. Sampling started one week later, 5-9-2019, as peas across the region were roughly 5 to 7 days behind last year's growth. The number of sampled fields were reduced by two for each identified region, thus totaling four in the Waterville area and four in the Ritzville/Lind area. Funding for this project continues to come from Highline Grain Growers. The overall goal of this research project is to continue to better understand the severity of this pest across our region, better define when this pest should be targeted for control, if any, and to alert pea producers about the size and location of damaging insect pest populations in order to aid in early detection and management efforts. The "action" or "treatment" threshold for this pest is (1 adult in 25 sweeps). One other major focus for this year's project was to identify if "passive" sampling in the form of pheromone sticky traps could be an option for pea producers. I worked with Alpha Scents in Oregon who specializes in the development and manufacturing of insect monitoring products. They had to create an "experimental" lure for pea weevil as there were none known to previously exist.

Monitoring summary:

Red Delta sticky traps were placed in each of the eight pea fields on May 9th. To determine the effectiveness of the experimental lure, I also sampled each field using a 16" round canvas sweep net. Monitoring protocol consisted of checking traps weekly for insect captures and raising them as the pea grew in height. Lures and sticky cards were changed bi-weekly. As for sweep net samples, the same protocol was used from last year i.e. 100 sweeps total (50 samples along the field border and 50 samples from within the interior of the field in a "zig-zag" type pattern). Trap checks and sweeps were again conducted later in the afternoon starting from 12:30 p.m. and beyond based on last year's surveys that showed weevil activity picked up later during the day. Pea leaf weevils (*Sitona lineata*) would also be recorded as part of this study. The two weevils differ in size, shape and color (see Fig 1.)

Fig 1. Pea weevil (left) and pea leaf weevil (right).



Shown in (Table 1.) are the number of weevils collected from fields located throughout the dryland region of Eastern Washington State. Cells shown in green indicate the pest was not found. Cells colored yellow indicate the pest was found below economic thresholds. Growers in these regions should be on the lookout for these pests but management action is not warranted unless populations exceed thresholds. Cells shown in red indicate the pest was found at levels that were beyond action or treatment thresholds. These fields and fields nearby should be treated with an appropriate insecticide.

Like last year, the first three weeks of sampling yielded zero weevils of either type. Even though the first blossom was detected on May 15th, the first pea weevil didn't show up until May 29th. All four sites in the Waterville area had weevils present. Two fields exceeded the "Action or Treatment threshold" limit having 12 and 5 weevils in 100 sweeps. (Note: Unfortunately, zero weevils of either kind were collected in the pheromone traps. All pest numbers in this report come from using a sweep net). With pea weevil numbers exceeding treatment thresholds in the Waterville area from both my sampling and Howard Nelson's, an email went out on 5-30-19 encouraging producers to treat fields with Imidan 70W. Despite this recommendation, some producers in the Waterville area decided to use Warrior II based on the cost of application.

Despite the call for producers to spray their fields, I continued to sample and monitor the pheromone traps. Weevil numbers were across the board ranging from none to many. Three out of five sites in the Waterville area had weevils exceeding double digits. One site that was not included in the sampling protocol (asked by grower separately) yielded 71 adults! (Fig 2). This more than tripled last year's high of 21. As for the four sites in the Ritzville/Lind area, only one pea weevil was detected west of Ritzville. Pea leaf weevils were again a non-factor for both sampling locations with only one adult being collected near Ritzville.

Like last year, after producers treated their fields with insecticide, all fields yielded zero weevils from that point on. However, the Gibson Rd. site yielded 18 weevils on June 21st. This indicates that this field may have not been treated with either the right insecticide and/or the correct rate. The reduction in weevil numbers post insecticide treatment again indicates that recommended insecticide applications work and that pea weevils need to be monitored. Producers choosing not to pay the \$1.60 per acre according to Ag Chem dealers risk losses in both yield and a dockage rate at the elevator.

Pea weevils continue to be a primary pest for producers in eastern Washington and vary across regions. It is surprising to see that pest numbers continue to be higher in the Waterville area especially since Ritzville/Lind was labeled as the "hot-spot" prior to this 2-year study. Producers will want to keep a watch out each year for this pest especially when the peas start to bloom. Findings from this project will be delivered to producers at future workshops and field tours.

Fig 2. Extreme Pea weevil numbers.



Table 1. Pea and Pea leaf weevil Weekly Monitoring Data from May 9th to June 21st.

May 9, 2019			
FIELD #	Field Name	AVG#/100 Sweeps	AVG#/100 Sweeps
		<i>Bruchis pisorum</i>	<i>Sitona lineata</i>
1	Waterville 1	0	0
2	Waterville 2	0	0
3	Waterville 3	0	0
4	Waterville 4	0	0
5	Ritzveille 1	0	0
6	Ritzveille 2	0	0
7	Ritzveille 3	0	0
8	Lind	0	0

	<i>Bruchis pisorum</i> not found
	<i>Bruchis pisorum</i> low risk (below 1 in 25 sweeps threshold)
	<i>Bruchis pisorum</i> high risk (above 1 in 25 sweeps threshold)

May 15, 2019			
FIELD #	Field Name	AVG#/100 Sweeps	AVG#/100 Sweeps
		<i>Bruchis pisorum</i>	<i>Sitona lineata</i>
1	Waterville 1	0	0
2	Waterville 2	0	0
3	Waterville 3	0	0
4	Waterville 4	0	0
5	Ritzveille 1	0	0
6	Ritzveille 2	0	0
7	Ritzveille 3	0	0
8	Lind	0	0

	<i>Bruchis pisorum</i> not found
	<i>Bruchis pisorum</i> low risk (below 1 in 25 sweeps threshold)
	<i>Bruchis pisorum</i> high risk (above 1 in 25 sweeps threshold)

May 23, 2019			
FIELD #	Field Name	AVG#/100 Sweeps	AVG#/100 Sweeps
		<i>Bruchis pisorum</i>	<i>Sitona lineata</i>
1	Waterville 1	0	0
2	Waterville 2	0	0
3	Waterville 3	0	0
4	Waterville 4	0	0
5	Ritzveille 1	0	0
6	Ritzveille 2	0	0
7	Ritzveille 3	0	0
8	Lind	0	0

	<i>Bruchis pisorum</i> not found
	<i>Bruchis pisorum</i> low risk (below 1 in 25 sweeps threshold)
	<i>Bruchis pisorum</i> high risk (above 1 in 25 sweeps threshold)

May 29, 2019			
FIELD #	Field Name	AVG#/100 Sweeps	AVG#/100 Sweeps
		<i>Bruchis pisorum</i>	<i>Sitona lineata</i>
1	Waterville 1	12	0
2	Waterville 2	5	0
3	Waterville 3	2	0
4	Waterville 4	3	0
5	Ritzveille 1	/	/
6	Ritzveille 2	/	/
7	Ritzveille 3	/	/
8	Lind	/	/

	<i>Bruchis pisorum</i> not found
	<i>Bruchis pisorum</i> low risk (below 1 in 25 sweeps threshold)
	<i>Bruchis pisorum</i> high risk (above 1 in 25 sweeps threshold)

May 30, 2019			
FIELD #	Field Name	AVG#/100 Sweeps	AVG#/100 Sweeps
		<i>Bruchis pisorum</i>	<i>Sitona lineata</i>
1	Waterville 1	/	/
2	Waterville 2	/	/
3	Waterville 3	/	/
4	Waterville 4	/	/
5	Ritzveille 1	0	0
6	Ritzveille 2	0	0
7	Ritzveille 3	0	0
8	Lind	0	0

	<i>Bruchis pisorum</i> not found
	<i>Bruchis pisorum</i> low risk (below 1 in 25 sweeps threshold)
	<i>Bruchis pisorum</i> high risk (above 1 in 25 sweeps threshold)

6/6/2019*			
FIELD #	Field Name	AVG#/100 Sweeps	AVG#/100 Sweeps
		<i>Bruchis pisorum</i>	<i>Sitona lineata</i>
1	Waterville 1	14	0
2	Waterville 2	7	0
3	Waterville 3	10	0
4	Waterville 4	2	0
5	Ritzveille 1	0	0
6	Ritzveille 2	1	0
7	Ritzveille 3	0	1
8	Lind	0	0

* 71 collected in a field separate from the study.

	<i>Bruchis pisorum</i> not found
	<i>Bruchis pisorum</i> low risk (below 1 in 25 sweeps threshold)
	<i>Bruchis pisorum</i> high risk (above 1 in 25 sweeps threshold)

June 21, 2019			
FIELD #	Field Name	AVG#/100 Sweeps	AVG#/100 Sweeps
		<i>Bruchis pisorum</i>	<i>Sitona lineata</i>
1	Waterville 1	0	0
2	Waterville 2	0	0
3	Waterville 3	18	0
4	Waterville 4	0	0
5	Ritzveille 1	0	0
6	Ritzveille 2	0	0
7	Ritzveille 3	0	0
8	Lind	0	0

	<i>Bruchis pisorum</i> not found
	<i>Bruchis pisorum</i> low risk (below 1 in 25 sweeps threshold)
	<i>Bruchis pisorum</i> high risk (above 1 in 25 sweeps threshold)