

HEMP NEWSLETTER

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SOUTHERN OREGON RESEARCH AND EXTENSION CENTER (SOREC)

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What Biological Treatment Options are Available for Corn Earworm Management?

Over the past two weeks, the Hemp Extension Team has received several phone calls and emails from Rogue Valley hemp growers, reporting that they've found corn earworm caterpillars feeding on their hemp flower buds, particularly on early maturing hemp strains. This article provides information on treatment options currently available for Oregon hemp growers.

Although increasing daily moth counts on a pheromone trap would indicate higher egg-laying activity on hemp plants, there is little information available to correlate moth counts to the timing of control application. There is currently no established acceptable economic threshold level for corn earworm caterpillars. However, to protect the crop, it may be worthwhile to initiate the control application if you observe young caterpillars feeding on hemp flower buds on several plants. Corn earworm moth monitoring results from Southern Oregon are presented in Table 1.

There are not many studies on corn earworm management in hemp. Biological insecticide, *Bacillus thuringiensis* (Bt.) strain "Aizawai" has been recommended for corn earworm control in hemp:

<https://webdoc.agsci.colostate.edu/hempinsects/PDFs/Corn%20Earworm%20in%20Hemp%20Management%20September%202018.pdf>. Check out this recent article where researchers have evaluated several biological insecticides for corn earworm control in CBD hemp:
<https://academic.oup.com/amt/article/46/1/tsab108/6291448?searchresult=1>.

Table 1. Corn earworm adult counts (adults/trap/week) in Southern Oregon hemp fields, 2021

Hemp Farm	Adult Counts		
	25-Aug	3-Sep	10-Sep
Farm 1	4	5	3
Farm 2	2	6	5
Farm 3	3	9	8
Farm 4	2	6	4

Key Reminders Regarding Biological Product (e.g., Bt., fungus, bacteria) Application

- Compared with most insecticides that kill insects on contact, biological insecticides (e.g. Bt.) must be ingested in order to kill insects. Bt. insecticides are a type of stomach poison.
- To provide good control, thorough plant coverage with spray is critical.

- Biological products will degrade rapidly when exposed to direct sunlight. The effective persistence on plants is short-lived, often less than 7 days.
- Multiple spray applications, likely two times a week, may be needed for caterpillar control to maintain coverage during outbreaks when adults are continuously laying eggs

Syrphid Larvae Resemble Lepidopteran Pest Caterpillars: Natural Biological Control Agent of Hemp Aphids

Hemp growers may find several beneficial insects on flower buds, which often play a key role in suppressing insect pest outbreaks. One such beneficial insect is syrphid (also called flower flies or hover flies); its larvae provide natural biological control of aphids, particularly, hemp aphids, in outdoor-grown hemp (Fig. 1). Syrphid larvae are specialist predators and mainly feed on aphids.

Hemp growers may confuse syrphid larvae with lepidopteran pest caterpillars. Corn earworm caterpillars and syrphid larvae have a similar appearance and can both be found on or near flower buds.

Syrphid larvae are usually brown, green, pink, or whitish in color, and body color depends on what they eat. One might find green syrphid larvae on Oregon hemp plants as they feed mainly on green-colored hemp aphids. Syrphid larvae are legless, and they usually have two narrow whitish long stripes on the body surface when they mature (Fig. 1B). This is generally the opposite case for lepidopteran caterpillars. It is likely to be a syrphid larva, if you see aphids around hemp buds or leaves; syrphid flies lay eggs close to aphid colonies (Fig. 1A). Check out this short video that explains how we can differentiate syrphid larvae from lepidopteran caterpillars:

<https://www.youtube.com/watch?v=N-g-1Qyrk2I>



Figure 1. Hemp aphids and syrphid eggs (yellow circled) on the hemp plant stem (A); Syrphid larvae (yellow circled) and hemp aphids (red circled). Photo Credit: Govinda Shrestha

Pre-Harvest Testing Reminders

With flowers filling out and harvest around the corner, it's time to consider pre-harvest testing.

The key details of the Oregon Department of Agriculture's pre-harvest testing process for hemp can be found by following this link:

<https://www.oregon.gov/oda/programs/Hemp/Pages/HempTestingLabs.aspx>

You'll find an excellent webinar detailing the pre-harvest testing process. Emily Roque, ODA's Hemp Testing Specialist, explains the protocol and details how to complete the request form. If you're new to growing hemp in Oregon or feeling rusty on the process, it's worth a watch. Follow this link to watch the webinar:

<https://www.youtube.com/watch?v=FcXvm1tWMUA>

Remember that harvest must begin within 28 days of the collection of a pre-harvest test sample. Some strains of hemp may accumulate Total THC content above 0.3% by the time they reach maturity. This pattern of cannabinoid accumulation has been documented in research conducted at Cornell University. Check out this article for more information:
<https://onlinelibrary.wiley.com/doi/full/10.1111/gcbb.12793> Conducting the pre-harvest test in the first several weeks after flower commences will reduce the chances of hemp testing above the THC threshold.

Preliminary research conducted at the Southern Oregon Research & Extension Center in 2020 found a pattern of cannabinoid accumulation similar to that described in the Cornell paper. The results of that study were presented at the most recent Southern Oregon Hemp Growers Forum.

To watch a recording, follow this link and skip to timestamp 1:12:30:

https://media.oregonstate.edu/media/t/1_kx1kkccs

News and Updates

SAVE THE DATE: OSU Hemp Field Day

On October 1st from 10am-12noon, the Klamath Falls Research and Extension Center will host a Hemp Field Day event at 6941 Washburn Way Klamath Falls, OR 97603. Registration will begin at 9:30am

For more Information, please contact

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