



11,459

TOTAL MEMBER
IRRIGATED ACRES
IN SHASTA COUNTY

1,503 MEMBERS

77,611

TOTAL MEMBER
IRRIGATED ACRES IN
TEHAMA COUNTY

2,874 PARCELS

Take-Home Message About Exceedance

Page 3

- Cause of water column toxicity to Hyalella is unknown.
- Toxicity not caused by pyrethroids.
- Toxicity not caused by Chlorpyrifos or Diazinon (insecticides).
- Toxicity may have been caused or contributed to by non-agricultural applications of insecticides.
- Communication to growers/applicators about exceedances is a critical element of the Irrigated Lands Regulatory Program to prevent future exceedances.
- Working with specialists in the County Agricultural Commissioner's office and growers/applicators in the relevant drainages will help ensure that future exceedances are minimized or avoided.

2021 Calendar

September 8, 2021

STWEC Board Meeting
at the Resource Conservation District
2 Sutter St Suite D. Red Bluff, CA. 96080
WILL BE HELD IN PERSON

Manure Usage & Storage

Impact on Water Quality



How Does Manure Affect Plant Growth

You've heard of nitrogen and phosphorus in relation to plant growth, and adding additional nutrients to crops as a beneficial factor. Manure contains more than just nutrients, it is organic matter that contributes to soil health and crop growth. In addition to being overloaded with nutrients, manure also contains water, ranging from 20% to 90% water depending on its consistency. The nitrogen in manure is often not available all at once to growing plants, as most of it is tied up into organic forms, which only get to the plants after the microorganisms in the soil decompose the organic compounds. There are proper and improper methods of applying manure, and proper application is vital to utilizing the full benefits. By mixing manure with compost, it eliminates the possibility of manure burning the plants. Another option would be to till the soil prior to planting, and using the manure in advance. Allowing the manure to break down eliminates the threat of burning plants, and well-aged manure is often the most beneficial. As the soil absorbs manure, the nutrients are released, which enriches the soil and helps the plants. Does the type of manure make a difference? The most common types of manure used are horse, cow, and chicken, although people have been known to use sheep and rabbit manure as well. You can find manure at many local stores such as Ace Hardware, Tractor Supply, and even Amazon; many farmers and ranchers are happy to give it away as well.

Is Too Much Fertilizer a Problem?

It's better to have too much than too little right? That's not always the case when it comes to using manure as a fertilizer. Adding too much manure can lead to nitrate leaching, nutrient runoff, excessive vegetative growth, and with some manures, salt damage. Fresh manure has higher amounts of ammonium or soluble nitrogen. Poultry manure is typically higher, and readily burns crops when overly applied. According to a university study, the manure should be incorporated or mixed 6 to 8 inches into the soil within 12 hours of application, which will dilute the nutrient content. Be careful when applying fresh manure, be sure to dilute it to avoid scorching plants, and be mindful of over application.

Affects of Manure Nutrients on Surface Water

Manure should be stored away from water sources. Many states, including California, have rules that require minimum distance between manure storage structures and water, wells, or sinkholes. These are called "setbacks". Another concern when applying manure would be the weather, if applied before rainfall, manure could runoff into nearby water sources. When manure contaminates water sources, the nutrients from the manure stimulates microorganism growth and reduces the dissolved oxygen content of the water. According to a study done at North Dakota State University, Without sufficient dissolved oxygen in surface water, fish and other aquatic species suffocate. The resulting dead fish and other aquatic species degrade the water quality and cause unpleasant odors. Runoff also increased weed and algae growth in bodies of water, as the additional nutrients encourage weed and algae growth. Ammonia toxicity from the manure can also prove fatal for local aquatic life. Finally, fecal organisms can carry disease, which can travel throughout water sources.

Sources:

<https://lplc.org/water-quality-issues-associated-with-manure/>

<https://hort.extension.wisc.edu/articles/using-manure-in-the-home-garden/#:~:text=Adding%20too%20much%20manure%20can,contamination%20with%20disease%2Dcausing%20pathogens.>

<https://www.thecattlesite.com/focus/5m/2311/beneficial-uses-of-manure-and-environmental-protection>

<https://www.gardeningknowhow.com/composting/manures/the-benefits-of-manure-in-your-garden.htm>

2 <https://www.ag.ndsu.edu/publications/environment-natural-resources/environmental-implications-of-excess-fertilizer-and-manure-on-water-quality>

https://www.waterboards.ca.gov/rwqcb5/board_decisions/adopted_orders/general_orders/r5-2013-0122.pdf

Exceedance Report

March 24, 2021

Site of Exceedance: Anderson Creek at Ash Creek Road (ACACR)

Site Type: Representative

Date of Exceedance: March 24, 2021

ILRP Trigger Limit Exceeded: Water column toxicity to *Hyalella azteca* (a species of amphipod crustacean). These crustacean reach 3-8 mm long, and is found in various fresh and brackish waters. Image for reference.

Cause of Exceedance: Unknown Source



Background:

One or more insecticides was likely the cause of this observed toxicity. One insecticide applied more often than another would also be more likely to cause the observed toxicity.

Pesticide Applications by Agriculture:

Fungicide and herbicide applications by agriculture were far more prevalent than insecticide applications prior to the observed toxicity exceedance. In fact, only a single insecticide was applied: *Beauveria bassiana*. Based on PUR data, pesticide detections described above, and the lack of additional information, no single pesticide is identifiable as likely to have caused or contributed to the observed water column toxicity to *Hyalella*.

Insecticides Applied to the Following Crops in the Six Weeks Prior to the Exceedance:

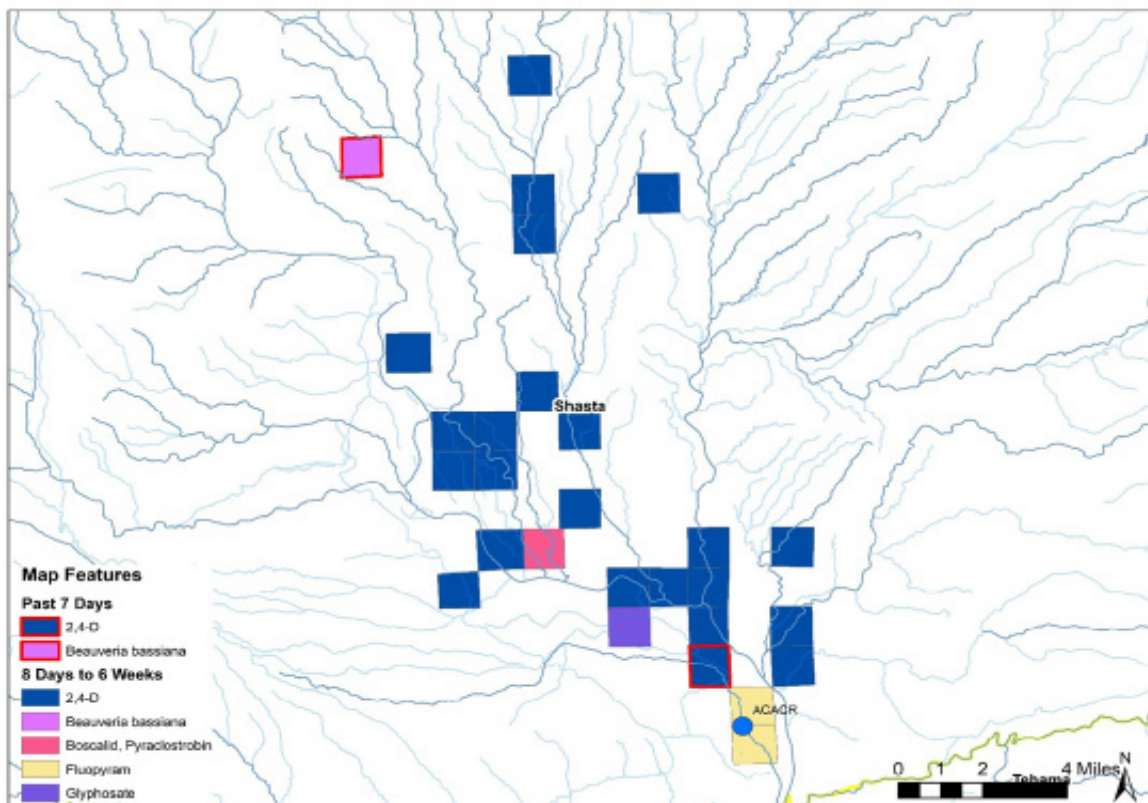
Beauveria bassiana was the only insecticide applied and it was applied to cannabis.

Non-Agricultural Pesticide Applications:

During February and March 2021, non-agricultural (Non-Ag) applications of insecticides in Shasta County were more prevalent than applications of herbicides, rodenticides, and fungicides.

Mapping of Agricultural Pesticide Applications:

Pesticide (fungicide, herbicide, insecticide) applications geographically relevant to the observed toxicity exceedance at the ACACR monitoring site are shown on the map below.



PRESIDENT'S MESSAGE

Dear STWEC enrolled Members,

May I take a moment to thank you all for your participation in our coalition, and for helping to show our county's residents that local agriculture is doing its best to be good shepherds of our environment. By following the requirements of the Irrigated Lands Regulatory Program (ILRP), you are doing your part to also prove to State and Regional Water Boards that more regulation is not necessary, and even less regulation is appropriate.

We continue to be a part of the discussion with the Sacramento Valley Water Quality Coalition and the Northern California Water Association to show that the State's ILRP is an economic burden to our members. We have provided scientific data through several highly respected consultants that prove that agriculture is generally safe and sometimes zero risk to water quality. We are trying to reduce our members' costs by requesting less monitoring of our local waterways, reduction of some regulation and exemption of some practices from the ILRP.

As this summer wears on we are finding degradation of some groundwater levels due to the drought conditions here in the north state as well as the entire western US. Whether one believes in man-made global warming or natural cycling of weather, we all face the effects. As you know, extremely low lake and stream levels will affect our agricultural practices one way or another. I am sure you are doing your best to conserve as much of this precious resource as possible. We realize that some of you may be exceptionally stressed in your commodity by lack of or virtually no irrigation water availability. I truly hope and pray for some relief of this devastating situation that many of you are facing. We are farmers and ranchers, and we remain very tough natured.

As a retired professional firefighter, I ask you all to take a moment and think of the thousands of firefighters battling blazes across the west. It is extremely hard and arduous work that goes on days on end until the fires are extinguished. Please do your part by providing defensible space around your properties so they can focus on the fire fight and not need to assign so many resources on structure protection.

With all this I hope you are having the best possible growing season and harvest. We also thank all of you who participated in our much belated annual meeting in Cottonwood in July. It was awesome to see so many of you face to face!

Thanks and best of luck to you all,



Ron Keown,
President STWEC Board of Directors



Shasta Tehama Watershed Education Coalition

PO Box 933
Red Bluff CA 96080

Phone: 530-527-4208

