



Ranunculus Poisoning

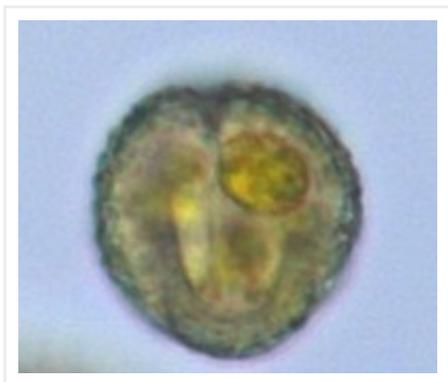
Posted on **May 31, 2012** by **Jennie Stitzinger**

A few weeks ago Dennis received a call regarding a Maryland beekeeper concerning what was believed to be a pesticide kill.

Throughout the conversation it was learned that there was an abundance of the common pasture weed, buttercups (*Ranunculus* species), growing in close proximity to the hives. The beekeeper noted that the bees appeared to be struck with a form of paralysis, twitching and exhibiting convulsive movements. While we are not ruling out a pesticide kill (the samples are still being tested), there have been cases where bees have been poisoned from ingesting buttercup pollen. Since it was mentioned that there were buttercups blooming nearby in this case, we decided to take a closer look.



— Photo credit: msnbc.com



— Buttercup pollen grain

Buttercups flourish abundantly in the warmer months. I am sure you are familiar with their bright, yellow flowers littering yards and pastures. The weed contains a chemical called anemonol which breaks down into the toxin protoanemonin, which is highly lethal to bees. When the plant dies, the protoanemonin no longer retains its toxicity as it is only present in the growing buttercup. However, pollen collected from a buttercup can retain deadly protoanemonin for a period of up to three years. Right now, buttercups are in full bloom creating a haven of toxicity for unsuspecting honey bees.

When bees eat this stored pollen they experience certain symptoms from the poison within minutes. Paralysis, body convulsions, and leg twitching can affect not only workers, but drones and queens alike. A number of titles have been given to identify these strange symptoms from *Ranunculus* poisoning such as May disease and Bettlach disease.

We were rushed a sample of bees in alcohol, buttercups picked from the area and a frame chock full of pollen taken from the hives. I identified the buttercup pollen and crushed up the bees to see if there was any buttercup pollen in their mid gut; however, there were very few traces of pollen found and it did not appear to be from the buttercups. I



— Buttercup pollen grain

had higher hopes to find some in the frame, however when I took a look at the pollen on the frame I found no buttercup pollen. It will be difficult to find out if buttercup pollen is really the cause of these unusual symptoms through pesticide analysis because protoanemonin is naturally occurring ‘pesticide,’ so there is no specific pesticide test for it. Because the samples are being analyzed for pesticides; however, we will be able to see those levels of man-made pesticides, possibly leading us to another conclusion, but until then, the mystery continues...



This entry was posted in **Blog** and tagged **anemonol, Bettlach disease, buttercup, convulsions, Diseases and pests, flowers, honey bees, jennie, Managing colonies, non-disease, May disease, paralysis, Pesticides, pesticides, poisoning, pollen, Pollen and pollination, protoanemonin, Ranunculus, stitzinger, twitching** by **Jennie Stitzinger**. Bookmark the **permalink** [<http://beeinformed.org/2012/05/ranunculus-poisoning/>].



About Jennie Stitzinger

In the summer of 2010 I walked in to the Penn State Agricultural Sciences building to inquire about a job a friend had mentioned to me. I was a poor college student, I needed to pay my summer rent, I was offered the job and I took it—I had no idea what I was in for. Fast forward a little over a year and I was kneeling on rocks and mud, in the cold, northern California rain, surrounded by dairy cows and hundreds of hives while Africanized bees were ping-pong off my bee suit. With a degree in Community Development from Penn State University, I never thought in a million years I would be working with honey bees upon graduation, but I guess life sure has its surprises. Now a member of the University of Maryland Diagnostic team, I work on many different aspects of BIP and the National Honey Bee Survey. Whether it is field work, traveling, report writing, crunch time projects, or larger missions, I am most likely working on it. What is my favorite part of the job? Working on an awesome project that has impact and is helping beekeepers around the country, learning more about honey bees than I ever thought I wanted to know, and giving me experiences I never thought possible.

View all posts by Jennie Stitzinger →

3 THOUGHTS ON “RANUNCULUS POISONING”



was any bee feces examined for pollen grain id?

on **June 1, 2012 at 2:36 am** said:

I wondered if the pollen could id the pollen in the feces or pollen basket loads found on the bottom board?



Bee Support

on **February 10, 2013 at 6:18 pm** said:

This is the most ridiculous explanation for CCD I have ever come across. Bees and flowers have evolved together for millions of years in perfect symbiosis. Bees are highly intelligent creatures that would not forage on flowers that are toxic to them. They only die after taking pollen from flowers they naturally visit when these flowers are poisoned by men.



Katie Lee

on **February 11, 2013 at 1:34 am** said:

Actually, honey bees have not evolved perfectly with all flowers. Honey bees evolved in Europe and Northern Africa and in not symbiosis with many of the new world plants. I work with a number of beekeepers in southeast TX that have huge issues with bee deaths due to yellow jessamine (or jasmine) vine, *Gelsemium sempervirens*. One even moved their queen breeding operation due to the large kill of the queen cells and bee brood. I wrote a blog about *Cyrilla racemiflora* that turns brood purple and kills it. I wouldn't say that plants are the cause of CCD (and I don't think Jennie was claiming that either), but they can definitely cause bee losses.