

# Newsletter

September- October 2021



Garfield  
County

WASHINGTON STATE UNIVERSITY  
EXTENSION



-Photo courtesy of Jamie Hames

## Welcome to the WSU Garfield County Extension Newsletter!

This is an electronic newsletter highlighting events and topics of interest to residents of Garfield County and the surrounding area. This newsletter can also be viewed on our website: <https://extension.wsu.edu/Garfield/>

Do you have an event or subject you would like added to our newsletter or website? Would you like to be removed from our Extension Newsletter email list?

Contact the Extension Office

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### Study Shows Pest Attack-Order Changes Plant Defenses

August 10, 2021,  
By Sara Zaske, WSU News

[Link to online Article](#)

Photos by Bob Hubner, WSU Photo Services

The dining time of different insects impacts a plant's defenses and nutritional quality—a complexity uncovered in new research with implications for pest management strategies. A piercing-sucking, virus-carrying aphid has long worried pea plant farmers, but a more innocuous-seeming weevil that only takes tiny bites from leaves was found to also play a significant role in plant health. Depending if the weevils eat before, or after, the aphids, they can increase or decrease the plant's ability to fend off the virus.

While many studies have focused on the impacts of a single pest, this study, published Aug. 4 online in [Molecular Ecology](#), is one of the few to look at the interaction of several antagonists. Through a set of greenhouse experiments, Saumik Basu, a WSU post-doctoral fellow and the study's lead author, and colleagues from the Crowder Laboratory at WSU and Cornell University attempted to understand what happens to the pea plant fields of Eastern Washington's Palouse area. In the field, plants face alternating infestations of pea leaf weevils, *Sitona lineatus*, and pea aphids, *Acrythosiphon pisum*, and a pathogen the pea aphids are also known to carry, Pea enation mosaic virus, or PEMV.

The researchers created experiments where first the weevils feasted on the plants then the aphids, and others that reversed the order. They also included scenarios where the plants were infected with the virus and some where they did not as well as a control group.

After removing the pests, the researchers let the plants grow for a week. Then, they ran plant samples through different sets of analyses to assess the plants' defense hormone levels and associated defense genes as well as nutritional qualities.

They found that when the weevil feasts first on the pea plants, it enhances some of the plants' anti-pathogen defense responses, helping them become more resilient to a virus infection.



Saumik Basu.

If the weevil dines second, after the aphids, it usually reduces the anti-pathogen defense responses, so the virus spreads more easily.

In turn, virus-infected plants had stronger anti-herbivore responses, putting out compounds that interfere with the plant-eating pests.

Further complicating the issue, the study found that when the weevils helped induce the anti-pathogen responses it lowered the nutrition of the plant by reducing the plants' available amino acids. These complex interactions hold important implications for pest management, Basu said.

“If we know beforehand when these interactions are happening, that information gives farmers a best possible remedy to prevent their fields from the attack,” he said. “This kind of information is really important for designing sustainable pest and pathogen management strategies.”

This study is part of a series of investigations into the interactions among many organisms that plants encounter. An earlier study in [Functional Ecology](#) looked at the antagonism between a plant virus and nitrogen-fixing bacteria called rhizobia that live in the soil. An upcoming

study looks at the interaction between the weevils and rhizobia.

These complex relationships are critical to understanding plant responses, said Basu.

“In a natural environment, a plant is exposed to different types of organisms, not just one or two, but many,” he said. “The order and the complexity—how many there are, what different types there are and their interactions—affect how the plant responds to all these attackers.”



## Study May Advance Control Strategies for Cattle Killer

August 25, 2021

By Josh Babcock, College of Veterinary Medicine

### Online Website

A deadly parasite in cattle may initially infect animals with multiple strains of the disease Bovine Anaplasmosis at the same time, according to a study led by Washington State University researchers.

The finding could inform new control strategies for a disease that causes serious health problems for cattle and economic problems for the beef industry that depends upon them.

“Controlling this disease is fundamental in reducing its impact on animal health, food, livelihoods and economies. These smallholder cattle farmers should be making profits, not taking losses,” said Roberta Koku, a WSU graduate student who led the study. The study, conducted in Ghana and led by researchers at the WSU College of Veterinary Medicine, was recently published in the *Journal of Infectious Diseases and Immunity*.

Bovine Anaplasmosis is a major obstacle to profitable beef production. According to the latest estimates from 2012 provided by the United States Department of Agriculture, the disease costs the United States beef industry more than about \$300 million per year. However, the economic impact of tick borne infections is difficult to track and has likely never been accurately measured.

The disease occurs in tropical and subtropical regions worldwide. It is spread when the parasite, *Anaplasma marginale*, is transmitted through the salivary glands of a tick into the host animal when the tick feeds. The bacteria enter the bloodstream and infect red blood cells.

Once an animal is infected, the disease can cause anemia, fever, weight loss, lethargy and death.

While some animals don’t show signs of disease, outbreaks can result in unexpected deaths of any number of animals in a herd. For more than 100 years, scientists have strived to produce an effective vaccine that can be used against the diverse strains of the parasite worldwide.

A blood-based vaccine is in use in South Africa but does not provide complete protection. It is also not effective against strains of the disease in other parts of the world.

For Koku, a Ghana native who is part of WSU associate professor Susan Noh’s laboratory, the work is es-

pecially critical, not just for the animals but to alleviate the intervention costs for farmers in her home country, who are trying to manage the disease with antibiotics. In addition, she said the antibiotic use also drives the threat of antibiotic resistance.

In Ghana, Koku and fellow researchers from the Paul G. Allen School for Global Health, the USDA and WSU’s Veterinary Microbiology and Pathology research unit monitored 16 uninfected animals that were introduced into an endemic herd where 97% of animals were infected with multiple strains.

Blood samples were collected daily to document any infection. It didn’t take long before all 16 introduced animals were infected with at least two strains of the parasite. Most animals were infected with three or four strains, and researchers noted as many as six strains in an animal.

The scientists also noted the number of strains entering a host animal after an immune response was 16% lower than those strains present before an immune response.

Koku said understanding the number of strains initially infecting the animal and at which particular timepoint is key.

Knowing fewer strains enter a host after an immune response and understanding how strains come about will allow Koku and her colleagues to zero-in on those strains associated with severe disease.

Now, the team plans to take those strains and closely examine their genetic makeup.

“This genetic portion of the work is in the early stages, but it will give us an idea of what is happening during an infection and could give us some ideas for intervention,” she said.



Roberta Koku, a graduate student in the lab of Dr. Susan Noh, performs DNA extractions from bacteria that will later be sent for genetic sequencing.

# The Buzz

## Asian Giant Hornet

Asotin County's July-September Newsletter

[Online Website](#)

Photos by Hanna Royals [Picture Website](#)

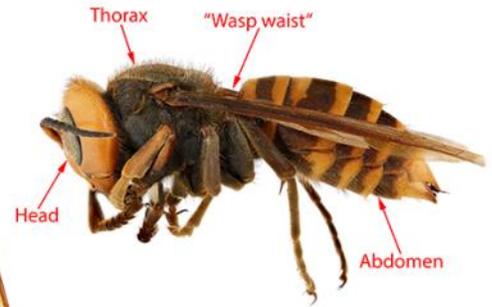
The Asian giant hornet (*Vespa mandarinia*) is the world's largest species of hornet. In December 2019, WSDA received and verified two reports of Asian giant hornets near Blaine. These are the first-ever sighting in the United States. Canada had also discovered Asian giant hornets in two locations in British Columbia in the fall of 2019.

In 2020, both Washington and Canada have had new confirmed sightings of Asian giant hornet. If it becomes established, this hornet will have negative impacts on the environment, economy, and public health of Washington State.

The Asian giant hornet attacks and destroys honeybee hives. A few hornets can destroy a hive in a matter of hours. The hornets enter a "slaughter phase" where they kill bees by decapitating them. They then defend the hive as their own, taking the brood to feed their own young. They also attack other insects but are not known to destroy entire populations of those insects.

AGH does not attack people unless it feels threatened. An AGH's stinger is longer than that of bees or wasps found in the United States, and their venom is more toxic. People with an allergy to bee or wasp stings should take particular caution and calmly leave the area if they believe they have sighted an AGH.

People should report potential sightings of the AGH by contacting their [state apiary inspector](#). If it is safe to do so, take a photo or collect a dead specimen of the pest to help experts identify the insect.



## Is that an Asian Giant Hornet?

The Asian Giant Hornet is the world's largest hornet, measuring up to 2 inches long. Despite its large size and distinctive markings, people often confuse it for other species.

### Body length

- From 1.5 to 2 inches

### Coloration

- Head: Large and solid yellow or orange, with black eyes
- Thorax: Mostly solid dark brown or black, making a striking contrast with the head color
- Abdomen: Alternating bands of dark brown or black and yellow or orange AGH adults have a "wasp waist" between the thorax and abdomen

## Lookalikes

### Western cicada killer (*Sphecius grandis*)

- Found in the western United States
- Can be up to 2 inches long
- Has a smaller head in proportion to the body than AGH, and different banding on the abdomen
- Has a reddish thorax instead of black, like the AGH
- Unlike hornets, has round eyes

Note: The contrast between the head color and the thorax color is much more apparent in AGH than in cicada killers.



WESTERN CICADA KILLER

ASIAN GIANT HORNET



## INFORMATION FROM WSU GARFIELD COUNTY MASTER GARDENER SUE FITZGERALD

The Garfield County Fair will be here in a few weeks. Start looking at your flowers and veggies for items that you might be able to enter. You can pick up entry tags at the WSU/Garfield County Extension Office prior to the fair. Bring the filled-in vegetable and fruit entry tags with your entries Thursday evening, September 16th, from 4:00 PM to 7:00 PM; or Friday Morning, September 17th, from 7:30 AM to 9:30 AM. Giant pumpkins for the Giant Pumpkin Contest need to be entered on Thursday. Flowers can be entered in the Flower department Friday morning, September 17th, from 7:30 AM to 9:30 AM. This way all you have to do is drop off your entries and be on your way. I will be helping take in entries. If you have any questions before the fair you may call me at (509) 843-6120.

Since, summer was very dry keep watering through the fall so there is some moisture in the soil. With hot days and cool nights, many plants develop powdery mildew. There is not much you can do to control this. Some sprays may help, but if our weather stays the same it will probably come back. Powdery mildew will not kill the plant, the leaves look bad but will be ok until fall frost kills them back. Although, don't compost plants when you do your fall cleanup.

As October cools down, cut back on watering trees and shrubs. You don't want a lot of new growth that has not hardened off and will be hurt by an early freeze. Purchase perennial plants and trees for fall planting, so you will get them planted in time for roots to get established before the soil freezes. This is a good time to start perennial seeds. You may plant them directly in the garden, but you will get better success planting them in containers. Put the container in a protected place where you can water them as needed. Fall is also a good time to plant hardwood cuttings. This is the process of cutting new growths off of well developed trees or shrubs to be planted in order to grow a new plant. It is best to use potting soil and put containers in a plastic sack to help retain moisture until roots form. Keep pots in a warm protected place with indirect sun light. When planting bulbs outside, mix a little fertilizer in the bottom of the hole and keep the soil moist so the bulbs will start producing roots. Established bulbs should be lightly fertilized. Mix fertilizer into the soil, this will help the roots feed the bulb for next year's flowers

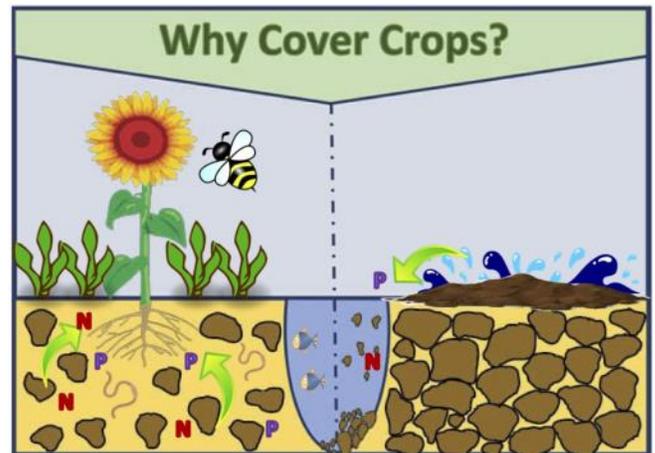
Dig up dahlias, glads and other tender bulbs after the first freeze. Let them dry for a few days out of direct sun light, then store them in peat moss where they will not freeze. In the veggie garden, plant cool season crops as early as possible. Keep the seeds well watered, as this will help in germination. Plan on protecting your tender seedlings as the temperature cools below 40 degrees. Plant garlic and shallots mid October. Use the biggest cloves as they will produce bigger bulbs. As you clean-up the veggie garden, plant a cover crop to help protect the soil from erosion. This will also add organic material to your garden soil. Legumes, Dutch clover, and wheat all serve as good cover crops. Mow to reduce height in spring and turn under after a few weeks.



Powdery Mildew



Hardwood Cuttings



Benefits of Cover Crops	Cons of Conventional Crop Rotation
<ul style="list-style-type: none"> <li>Improved nutrient cycling</li> <li>Increased organic matter</li> <li>Reduced soil erosion</li> <li>Increased weed suppression</li> <li>Increased water absorption</li> <li>Improved wildlife habitat</li> </ul>	<ul style="list-style-type: none"> <li>Increased soil compaction</li> <li>Increased surface runoff</li> <li>Increased nutrient and sediment loss</li> <li>Organic matter degradation</li> <li>Increased risk of heavy rain</li> <li>Increased risk of severe drought</li> </ul>

Spring bulbs can be forced to bloom in late winter. To do so, plant bulbs in pots filled with potting soil. Water enough so that the soil is damp but not soggy wet. Put pots in a dark cool location 35 to 50 degrees F. Continue to check every couple of weeks to make sure that the soil is slightly moist. Once bulbs begin to grow roots, move pots to a cool place with indirect sunlight. After a couple of weeks move the pots into a room with direct sun light that maintains a temperature of 60 to 65 degrees Fahrenheit. Be sure that the soil stays moist. After flowers fade, you can plant the bulb outside. Here are the approximate weeks to flowering from planting for the following flowers:

Tulips -14-20 weeks  
 Crocus- 15-17 weeks  
 Hyacinths- 10-12 wks  
 Daffodils- 15-17 wks



Tulips

Crocus

Hyacinths

Daffodils

Here are a few plants for fall color. Asters are easy to grow and they bloom from mid summer till frost. These flowers come in many shades of pink, blue and white. Agastache also bloom through summer into fall if spent flowers are removed. These flowers also come in many shades, but the red blooms make good bee and humming bird plants. Russian Sage blooms through summer to fall. Their blooms are Lavender. Autumn Sedum are easy to grown and bloom from late summer to frost. Their blooms are pink to red depending on variety. Ninebark has a reddish foliage form late fall to winter. Winterberry have white or red berries from late fall into winter. This plant is good food for wild birds.



Asters

Agastache

Russian Sage

Autumn Sedum

Ninebark

Winterberry

A good place to visit to see what grows in our area is the Arboretum at the UI in Moscow. There are plants growing spring to fall. Free parking on the south side.



UI Arboretum

HAPPY GARDENING! SEE YOU AT THE FAIR  
 Your WSU Garfield County Master Gardeners.



## How to boost your immune system

February 15, 2021, [Online Website](#)

### Strengthen your immune system and fight off disease

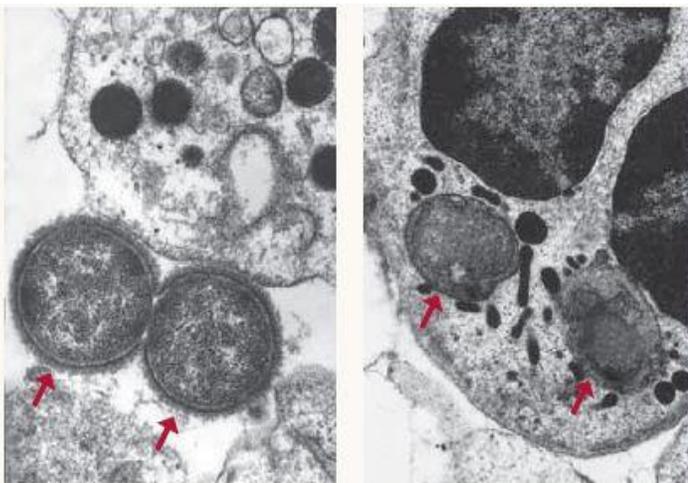
How can you improve your immune system? On the whole, your immune system does a remarkable job of defending you against disease-causing microorganisms. But sometimes it fails: A germ invades successfully and makes you sick. Is it possible to intervene in this process and boost your immune system? What if you improve your diet? Take certain vitamins or herbal preparations? Make other lifestyle changes in the hope of producing a near-perfect immune response?

### Healthy ways to strengthen your immune system

Your first line of defense is to choose a healthy lifestyle. Following general good-health guidelines is the single best step you can take toward naturally keeping your immune system working properly. Every part of your body, including your immune system, functions better when protected from environmental assaults and bolstered by healthy-living strategies such as these:

- Don't smoke.
- Eat a diet high in fruits and vegetables.
- Exercise regularly.
- Maintain a healthy weight.
- If you drink alcohol, drink only in moderation.
- Get adequate sleep.
- Take steps to avoid infection, such as washing your hands frequently and cooking meats thoroughly.
- Try to minimize stress.
- Keep current with all recommended vaccines. Vaccines prime your immune system to fight off infections before they take hold in your body.

### Exercise: Good or bad for



**Immunity in action.** A healthy immune system can defeat invading pathogens as shown above, where two bacteria that cause gonorrhea are no match for the large phagocyte, called a neutrophil, that engulfs and kills them (see arrows).

### immunity?

Regular exercise is one of the pillars of healthy living. It improves cardiovascular health, lowers blood pressure, helps control body weight, and protects against a variety of diseases. But does it help to boost your immune system naturally and keep it healthy? Just like a healthy diet, exercise can contribute to general immune system.

# Garfield County Fair & Rodeo

## "Country Fun in 21"



**Garfield County Fair**  
**September 17th– 19th, 2021**  
**99 Fairgrounds Rd,**  
**Pomeroy, WA 99347**

## 2021 GARFIELD COUNTY FAIR RODEO



SUNDAY SEPT. 19<sup>TH</sup>, 2021 1:00 p.m.

Garfield County Fairgrounds,  
Pomeroy, Washington

**\*\*SIGN-UP\*\***

For all events

**\*\*Tuesday, Sept. 7<sup>th</sup>, 5-9 p.m.\*\***  
**(509) 843-1723**

**\*\*NO LATE ENTRIES\*\***

## Raffles

### Support the Garfield County Fair



#### **A Fishing Trip or Snake Dancer Excursions Trip**

The Garfield County Fair Board are raffling off two trips as a fundraiser to earn money for the Garfield County Fair. The fishing trip raffle is with Z & S Outfitters. The one-day trip will be a fishing excursion up Hells Canyon.

The Snake Dancer Excursion raffle is for a trip up to Hells Canyon Dam for two people. On the trip you will experience 11 hours of scenery, wildlife, and history, as well as some thrilling Snake River

Rapids. Breakfast and Lunch will be included. This trip for two would normally be valued at \$578.

The tickets are \$5 each for both raffles and each trip is limited to 500 tickets. Tickets can be purchased from fair board members now and up until the drawing, which will be held at the 2021 Garfield County Fair Rodeo or until tickets are sold out. The people whose names are drawn at the rodeo need not be present to win.



#### **Quilt Raffle**

The Pomeroy Quilters are raffling off two quilts, a 62 x 64 inch kid's quilt & a 64 x 68 inch quilt. The quilts will be displayed in various businesses throughout town.

Tickets can be purchased at the Eastern Washington Bank, Garfield County Extension Office, Pomeroy Pharmacy, & The Blue Mountain Artisan Guild for a \$1 a ticket or 6 for \$5. Proceeds will be donated to the Garfield County. Fair Drawing will be made during the 2021 Garfield County Fair Rodeo. Need not be present to win.



# POMEROY FFA UPDATE

Article by Kyle Kimble

FFA Livestock Judging Evaluation team will be competing at the following contests this fall.

9/10: Columbia County Fair

9/11: Palouse Empire Fair

9/13: Spokane Interstate Fair

9/17: Garfield County Fair

10/18: Northern International Livestock Exposition (NILE) in Billings, MT



Kendall Dixon

Kendall Dixon has made the top 10 in her Agriscience Fair Project at Nationals. She will go through an interview on 9/10 about her project. There will be no in-person Agriscience Fair at the National FFA Convention in Indianapolis, IN this year. Her project tested the effectiveness of hair growth/promotion products on show cattle.

FFA Alumni will be selling Ms. Piggy at the fair again this year. She will be the last hog to go through the sale and all funds go towards our FFA members through jacket purchases, travel, awards, scholarships, and leadership opportunities.

The FFA Alumni will also be selecting their winner(s) of the Livestock Merit program. FFA members will submit applications for either market or breeding livestock projects and the FFA Alumni will facilitate purchases of quality livestock for kids to exhibit or use in their breeding programs. To date, the FFA Alumni has purchased 3 market hogs, 1 market lamb, and 2 breeding heifers.

## 4-H UPDATE

It's time to start thinking about what projects you will enter. All 4-H'ers are encouraged to enter their projects from the 2020-2021 4-H year. Exhibits can include things you made at school or on your own as well as things done through 4-H. I am looking forward to seeing your projects. Premium books and exhibit tags are available at the Extension Office.

I want to remind everyone 4-H club demonstrations are a re-enrollment requirement for all 4-H'ers 2<sup>nd</sup> year and above. That being said, if you have given your demonstration for your club, you are eligible to repeat it during the fair and earn premium money. If you would like to give your demonstration during the fair please let me know so we can set up a time. 4-H'ers with animal projects, I usually try to meet you in the barn near your poster. All other demonstrations are done in the kitchen in the community building.

If I can be of any help to you as you get ready for the fair please let me know. If you don't catch me in the office you may call my home phone 509-843-1426 or use my home email [sjlwood58@gmail.com](mailto:sjlwood58@gmail.com)

Sheree Ledgerwood  
4-H Program Assistant  
WSU/ Garfield County Extension

FOR MORE  
UPCOMING  
4-H EVENTS  
VISIT THE  
4-H YOUTH  
DEVELOPMENT  
PROGRAM

[https://  
extension.wsu.edu/  
4h/news/](https://extension.wsu.edu/4h/news/)



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## Did You Know New Technology Converts Waste Plastic to Jet Fuel?

By Tina Hilding, Voiland College of Engineering and Architecture  
Article paraphrased from WSU insider addition May 17, 2021. For the full article click [Here](#)

Up until now “only about 9% of plastic in the US is recycled every year.” Plastic recycling requires a long process of heating up materials to very high temperatures. Because this process was so difficult and expensive, plastics were being disposed of causing pollution of the oceans and other environmental problems. Two WSU graduate student researchers, Chuhua Jia and Hongfei Lin, developed a better way to “convert 90% of plastic to jet fuel and other valuable hydrocarbon products within an hour at moderate temperatures.” They used a “ruthenium on carbon Catalyst and a commonly used solvent.” With the funding of the Washington Research Foundation, these two geniuses are working to make the process useable on a larger scale. If you are interested in their research you can find reports on their work in the [Chem Catalysis Journal](#).

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Garfield County

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Helping You Put Knowledge To Work