



# **Southeastern Game Bird Breeders & Hunting Preserve Association Newsletter**

2019 No. 7

## **Ticks Spread More Than Lyme Disease**

*Ticks spread plenty more for you to worry about beyond Lyme disease*

**PUBLISHED ON JULY 14, 2019**

STARKVILLE, Miss. (THE CONVERSATION) — When it comes to problems caused by ticks, Lyme disease hogs a lot of the limelight. But various tick species carry and transmit a collection of other pathogens, some of which cause serious, even fatal, conditions.

In fact, the number of tick-borne disease cases is on the rise in the United States. The range where various species of ticks live in North America may be expanding due to climate change. Researchers continue to discover new pathogens that live in ticks. And new, invasive tick species keep turning up. In my career as a public health entomologist, I've been amazed at the ability of ticks to bounce back from all the ways people try to control them, including with pesticides. Ticks excel at finding new ecological niches for survival. So people and ticks frequently cross paths, exposing us to their bites and the diseases they carry.

Here are some of the lesser-known, but growing, threats from ticks.

Ticks can spread bacterial diseases.

Certain very small species of bacteria that can cause human diseases, such as rickettsia, ehrlichia and anaplasma, live in ticks. Ticks ingest these bacteria when they drink animals' blood. Then when the ticks take a subsequent blood meal, they pass the bacteria along to the next animal or person they feed on.

Probably the most well known of these bacterial diseases is Rocky Mountain spotted fever, the most frequently reported rickettsial disease in the U.S., with about 6,000 cases each year. The number of diagnoses seems to be increasing nationwide, especially among Native Americans, probably due to exposure on reservations to free-roaming dogs that can carry ticks.

When people get sick with Rocky Mountain spotted fever, they usually come to a clinic with three things: fever, rash and history of tick bite. They may also report severe headache, chills and muscle pains, and gastrointestinal symptoms such as abdominal pain and diarrhea. A skin rash is usually present after a few days, but not always. Mental confusion, coma and death can occur in severe cases. Untreated, the mortality rate is about 20%; and even with treatment, 4% of those infected die.

Not all tick species are effective transmitters of the rickettsia bacteria. Even within the vector species, often only 1% to 5% of ticks in an area are infected. So getting bitten by a tick that passes rickettsia bacteria on to you is like getting stuck with a needle in a haystack. The primary carriers are the American dog tick in the eastern U.S. and Rocky Mountain wood tick in the West. The brown dog tick has also recently been shown to be a vector.

In most tick-borne diseases, the tick needs to feed for some amount of time before any pathogens it's carrying are transmitted to the animal whose blood it's eating. Rocky Mountain spotted fever organisms generally take between one and three hours for transmission to occur, so attached ticks need to be removed quickly. Doctors usually prescribe the antibiotic doxycycline to treat Rocky Mountain spotted fever, which works quite well if the disease is recognized early.

Ehrlichiosis is another bacterial disease transmitted from ticks to people. In the U.S. it's most commonly caused by Ehrlichia chaffeensis bacteria, carried by lone star ticks which are common in the eastern U.S. Ehrlichia bacteria infect a type of blood cell called leukocytes. Human monocytic ehrlichiosis occurs mostly in the southern and south-central U.S.; 1,642 cases were reported to the CDC in 2017.

Ehrlichiosis patients usually have fever, headache, muscle aches and a

progressive low white blood cell count. As opposed to Rocky Mountain spotted fever, people get a rash only about 20% to 40% of the time. Doctors usually treat ehrlichiosis with doxycycline.

Another tick-borne bacterial disease to worry about is human granulocytic anaplasmosis. In human granulocytic anaplasmosis, *Anaplasma phagocytophilum* bacteria infects a type of white blood cell called granulocytes. It mostly occurs in the upper midwestern and northeastern U.S., and the incidence is increasing, with 5,762 cases of human granulocytic anaplasmosis reported to the CDC in 2017.

Symptoms include fever, headache, muscle aches and progressive low white blood cell count. It's the deer tick *Ixodes scapularis* – famously also responsible for Lyme disease – that transmits the *Anaplasma* bacteria to humans. There's the unlucky chance that a bite from a deer tick could infect you with both diseases. Again, recommended therapy is doxycycline.

Ticks can carry viruses, too

People usually think of mosquitoes when they think of insect-transmitted viruses – dengue, Zika or West Nile garner a lot of headlines. But ticks can transmit viruses, too.

Scientists have historically grouped tick-borne viral diseases into two categories. One is diseases similar to dengue fever. The main dengue-like viral disease transmitted by ticks in the U.S. is Colorado tick fever, which occurs in mountainous areas of the West.

The other group of tick-borne diseases resemble mosquito-borne encephalitis. Most of these illnesses, characterized by brain inflammation, are not found in the U.S. Powassan encephalitis is the one that is, occurring in the northeastern U.S. and adjacent regions of Canada.

Powassan is a relatively rare but serious human disease, characterized by sudden onset of fever with temperature up to 104 degrees Fahrenheit, along with convulsions. Brain inflammation is usually severe, with vomiting, respiratory distress and prolonged fever.

Fewer than 100 cases of Powassan have been reported in North America, with about half of them fatal. Its incidence seems to be increasing; there were 34 cases of Powassan reported during 2017. POW is maintained in a natural cycle when ticks – primarily *Ixodes cookei* – infect animals with the virus via their bites. Then these infected animals may serve as what scientists call disease reservoirs, infecting new ticks when they feed on their blood.

In the last decade, researchers have found additional new tick-borne viruses in the U.S. About 30 cases of Heartland virus have thus far been identified. It's associated with the lone star tick and has been recognized in Missouri,

Oklahoma, Kentucky and Tennessee.

A few cases of a new Thogotovirus called Bourbon virus have been identified in the Midwest and southern U.S. The lone star tick may be the vector of Bourbon virus as well.

A food allergy triggered by a tick bite

Maybe the most bizarre threat from ticks is the “red meat allergy” scientists have recently traced back to tick bites. People can become allergic to eating meat when a tick’s saliva passes on the carbohydrate galactose- $\alpha$ -1.3-galactose it had previously picked up in a blood meal from an animal. If prone to allergies, the person can get sensitized to that alpha-gal molecule that’s found in animal blood and other tissues.

Then days or weeks later, he or she may develop hives, swollen skin and lips, or even life-threatening anaphylactic shock three to six hours after eating red meat. Meats containing alpha-gal include beef, pork, lamb, squirrel, rabbit, horse, goat, deer, kangaroo, seal and whale. People who become sensitized to alpha-gal may still eat chicken, turkey and fish.

Overall, people should be aware of what tick-borne diseases are present in their area and use personal protection techniques whenever outdoors in tick-infested areas. Remember that ticks often come into close contact with people via pet dogs or cats. It’s a good idea to inspect yourself for ticks after being outdoors in tick-infested areas. Reducing the number of tick bites and the amount of time ticks remain attached can go a long way to protecting you from tick-borne diseases.

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here: <http://theconversation.com/ticks-spread-plenty-more-for-you-to-worry-about-beyond-lyme-disease-118102>.

— Jerome Goddard

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## **UGA Specialist Optimistic Recent Rains Will Help Improve State's Corn Crop**

*No significant rainfall was recorded from May 11 into early  
June*

**PUBLISHED ON JULY 8, 2019**

TIFTON, Ga. — After suffering a three-week dry spell in May, Georgia corn crops benefited from rains during the month of June.

It's an encouraging sign for the future of this year's corn crop, according to University of Georgia Cooperative Extension corn weed specialist Eric Prostko.

"We've been catching these rains right at pollination or slightly later so they've been very helpful," Prostko said.

No significant rainfall was recorded from May 11 into early June, causing uncertainty around Georgia's corn crop in late May. This was especially harmful for Georgia's dryland corn crop, where irrigation is unavailable. Georgia's dryland acreage totals about 70,000 acres.

"Not having any rain really hurt us, but that 21- to 25-day period was especially rough because it was about seven degrees hotter than normal," Prostko said. "Of course, we've been getting rains now so that should be really helpful."

According to this year's UGA Extension Corn Production Guide (<https://t.uga.edu/54o>), corn requires the most rainfall during pollination, approximately 0.33 inches per day. Rainfall is essential for the plant to produce ears of corn. If the corn doesn't receive the right amount of water at the right time, the amount and size of the kernels could be impacted.

"Most of (Georgia's) corn is irrigated, which is a good thing. But for the 20% that's not, we won't know the impact of that drought until it's time for harvest," Prostko said. "I had a farmer tell me this year that a year ago he made 200 bushels of dryland corn. I don't think that's going to happen this year."

Dryland farmers had a successful year in 2018 due in large part to the abundance of rainfall Georgia experienced during late spring. Two straight weeks of rain in May 2018 helped spike corn production in dryland fields. Georgia growers planted 325,000 acres in 2018, with harvested acres for grain estimated at 275,000. Corn production in Georgia was estimated at 46.5 million bushels in 2018, up 8% from 2017. Georgia corn yields have consistently been close to or more than 170 bushels per acre since 2012.

For more information about corn production in Georgia, see the UGA Grain Crop Team website at <https://grains.caes.uga.edu>.

—Clint Thompson, University of Georgia

## **What Are Soil Aggregates?**

*The varied shapes allow for healthy soil to have pores for air and water*

PUBLISHED ON JULY 15, 2019

WASHINGTON — The ground beneath your feet might seem like a uniform material, but it's really a mixture of soil particles, organic matter, and other mineral/organic components. For a soil to be healthy, it must have good structure. Soil is made up of a combination of primary particles – sand, silt and clay. These particles can be bound together into what soil scientists call “aggregates.” The Soil Science Society of America’s (SSSA) July 15<sup>th</sup> Soils Matter blog looks at soil aggregates and their importance in healthy soil. “Soil aggregates are formed through physical, chemical and biological activity belowground,” says blogger Nall I. Moonilall, Ohio State University. “The second part of aggregate formation deals with cementation.” Minerals, and even glue-like materials for soil microorganisms and fauna facilitate this step.

“Soil aggregates play a major role in soil structure formation and soil health,” says Moonilall. “In agriculture, the stability of aggregates is critical to how well an agroecosystem will function. The pore spaces in soil influence air and water storage, and gaseous exchange. They create habitat for soil microorganisms, and allow for plant root development and penetration. They also assist in nutrient cycling and transport. Soils that have high aggregate stability are less susceptible to erosion. They hold their shape when exposed to disruptive forces, like water, and do not easily break apart.”

Read the entire post

here: <https://soilsmatter.wordpress.com/2019/07/15/what-are-soil-aggregates>  
Follow SSSA on Facebook at <https://www.facebook.com/SSSA.soils>, Twitter at SSSA\_Soils. SSSA has soils information on [www.soils.org/discover-soils](http://www.soils.org/discover-soils), for teachers at [www.soils4teachers.org](http://www.soils4teachers.org), and for students through 12<sup>th</sup> grade, [www.soils4kids.org](http://www.soils4kids.org).

–Soil Science Society of America

## **The Organic Label Doesn't Tell The Full Story**

*Organic producers are helping India's farmers safeguard their land*

PUBLISHED ON JULY 15, 2019

WEST LAFAYETTE, Ind. — The label on organic, fair-trade coffee and clothing doesn't always tell the full story.

In some cases, companies are working behind the scenes to provide more than just higher earnings by helping marginalized farmers secure land and protect it from logging, mining and large-scale agriculture operations. This is true with organic coffee and cotton production in three villages in India, home to more organic producers than any other country, said Andrew Flachs, an assistant professor of anthropology at Purdue University.

“Organic farming helps to make a new kind of rural wealth available to Adivasi, or scheduled tribe farmers in these villages,” Flachs said. “These are not people who could own land before, and now they're part of this first generation since independence and new laws to really have these rights to land, this resource that can keep producing wealth and status. It's a big deal to pass that forward year after year, and organic farming is one way to really protect and preserve that.”

During the summer of 2018, Flachs and Sreenu Panuganti, a graduate student at the University of Hyderabad, led surveys, interviews and focus groups, attended planning meetings and visited farms in two South Indian villages in the Adilabad district in northern Telangana, as well as one village near Araku in Andhra Pradesh. They asked how farmers and their families imagined their products and the place of agricultural work for their children. The findings are published online in the journal *Economic Anthropology*.

The researchers found that farmers decided to produce organic commodities like coffee and cotton not only to add value, but to safeguard their land from corporate interests and extraction operations, which are favored by banks and the local government, Flachs said. Many organic producers in India, for example, have a social justice wing that provides assistance to farmers seeking loans and organic certification. The study focused primarily on Adivasi farmers, members of scheduled tribes that have been targets of discrimination since the days of British colonization.

An organic coffee farmer points out the array of agricultural biodiversity in his mountainside coffee garden. (Photo credit: Andrew Flachs)

“These people have been historically kicked off land but now are seeing a bright future in agriculture, which is a good thing if we're talking about sustainable farming,” he said. “You have to have young farmers adopting this way of life. Since the 1950s, development all around the world has meant getting off the farm and going to the cities, but now we're starting to question



that all around the world.”

Farming is an important way of life in India, an occupation comprising 60 percent of the country’s workforce, Flachs said. The researchers found that farmers’ dreams of passing down their land to their children played an important role in their decision to go organic. As a result, there are booming opportunities for rural white-collar jobs surrounding the burgeoning industry. “You’ve got this class of rural professionals that could be making a lot more money doing the same kind of exploitation that everybody else is doing, but now they see themselves as part of this industry,” he said.

Research support was provided through the American Institute for Indian Studies and the Purdue University College of Liberal Arts.

The work aligns with Purdue’s Giant Leaps celebration, acknowledging the university’s global advancements made in sustainability as part of Purdue’s 150th anniversary. This is one of the four themes of the yearlong celebration’s Ideas Festival, designed to showcase Purdue as an intellectual center solving real-world issues.

— Purdue University Agriculture News

## **Corn prices heating up**

*Supply issues to come if dry, hot weather persists over large areas of the Corn Belt*

**PUBLISHED ON JULY 17, 2019**

URBANA, Ill. — Despite the USDA raising 2018-19 marketing-year ending stocks for corn in last Thursday’s WASDE report, corn prices moved higher to end the week. December corn futures prices returned to the levels seen before the surprising June Acreage report. Strengthening basis levels indicate supply issues to come if the dry, hot weather persists over large areas of the Corn Belt, according to University of Illinois agricultural economist Todd Hubbs.

“From the demand side, the WASDE report contained bearish information,” Hubbs says. “Corn exports during the 2018-19 marketing year came in at 2.1 billion bushels, down 100 million bushels from last month’s projections. Higher corn prices and abundant crops in South America provide an outlook for continued weakness in corn exports as we move into the next marketing year.”

Brazil and Argentina corn crop levels sit at 3.98 and 2.0 billion bushels



respectively. In total, corn production in both countries is up 1.5 billion bushels over last year. A combined corn export forecast for Brazil and Argentina comes to 2.75 billion bushels, up 881 million bushels from last marketing year. Over the previous four weeks, export inspections averaged 22.6 million bushels. Corn exports currently total 1.872 billion bushels. For the marketing year, export inspections averaged 37.7 million bushels per week. The slower export pace for corn looks to continue, as outstanding sales currently sit at 212 million bushels for the current marketing year. Japan and Mexico account for approximately 57% of those sales.

Along with corn export weakness, the WASDE report lowered consumption for food and industrial uses by 20 million bushels and feed and residual use by 25 million bushels. Feed and residual use fell based on disappearance associated with the June 1 Grain Stocks report. Food and industrial uses showed weakening demand. Ethanol used for corn maintained the 5.45 billion bushels projection from the June report. Weekly ethanol production averaged approximately 1.6 million barrels per day over the last 12 weeks. “The increased production stands in contrast to the weak performance over the first quarter of 2019,” Hubbs says. “Supply weakness in cash markets led to rising corn bids at eastern Corn Belt ethanol plants. Indiana and Ohio saw corn basis at ethanol plants exceed 50 cents last week. Illinois saw some bids at ethanol plants at 30 cents over.”

The lack of corn in many areas may hamper ethanol production moving into the next marketing year, particularly in the eastern Corn Belt. In total, 2018-19 ending stocks increased 145 million bushels to 2.34 billion bushels. Yield and acreage uncertainty continue to be the critical factors for corn price prospects. The potential for corn yields falling below the current 166 bushels per acre projected by the USDA remains strong. For the week ending July 7, good and excellent crop conditions for the 18 reporting states came in at 57%, down 18% from last crop year. Since 1986, this year’s good and excellent crop condition ratings through July 7 ranked the fifth lowest, on par with the crop year of 2005.

“The extreme heat over large sections of Iowa and the eastern Corn Belt point toward further deterioration in the ratings over the next few weeks. Many areas need rain,” Hubbs states. “The late-planted crop in the eastern regions of the U.S. may come under stress before pollination. Illinois, Indiana, and Ohio each show good and excellent ratings below 40% as of July 7.

“If the precipitation forecast for many areas of the eastern Corn Belt does not materialize from the current system moving through Louisiana, the

temperature projections above 90 degrees over the next week may do lasting damage to yield potential,” he adds.

“Few market observers seem to believe the 91.7 million acres of corn reported in the June Acreage report,” Hubbs notes. “The uncertainty associated with total acreage may linger for a while. The acreage levels reported in Illinois, Indiana, and Ohio appear elevated. Illinois reported 11 million acres of corn planted this year, which equates to last year’s acreage. Based on the delayed planting and potential for increased prevent plant acres, this seems optimistic.”

Indiana reported corn acreage up over last year as well. Many analysts see corn acreage in the 86 to 88 million-acre range for 2019. Corn acreage near 85 million acres may be closer to the truth, but remains dependent on the quantity of corn actually planted in June. The potential for substantial levels of failed acres also places harvested acres under question.

“If one assumes the 2.34 billion bushel carryout for 2018-2019 and the USDA’s 166 bushels per acre yield projection remain correct, harvested acreage of 76.7 million acres yields a supply of 15.1 billion bushels at current import projections,” Hubbs says.

A 2019 supply at this level comes in 1.4 billion bushels below last year’s total, on par with the 1.57 billion bushel drop from 2011 to 2012. If corn yields deteriorate, the prospect of rationing appears stronger for the 2019-20 marketing year.

“Strong basis levels in the eastern Corn Belt point toward either a poor crop, lower acreage, or a combination of both factors,” Hubbs concludes. “The uncertainty on supply for this year’s corn crop looks to buoy prices over the near term with a weather premium moving into place. A confirmation of poor corn yields and lower acreage sets up the conditions for bullish price scenarios in the 2019-20 marketing year.”

Discussion and graphs associated with this article available

here: [https://youtu.be/uG\\_x-](https://youtu.be/uG_x-SnUqOg)

[SnUqOg](https://uofi.box.com/s/ukz40dr377fleo5oezqe74nsnas9azkk) or <https://uofi.box.com/s/ukz40dr377fleo5oezqe74nsnas9azkk>

— University of Illinois CACES

## **Secretary's Corner**

You haven't heard from me for a while. Egads. During the hot, humid days of June I was moving. Heat exhaustion provided me a visit to a Duke hospital for 2 1/2 days. Oh, what fun. Fortunately, I am recuperating very well thanks

to EM and hospital personnel. PLEASE keep your selves adequately hydrated in this June/July heat wave. In NC, the heat index has reached 110 degrees F or more in several places for several days. My phone and email are the same. My new address is:

Dr. Gary S. Davis, Exec. Sec.

SEGB&HPA

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