Researchers: Farmers Know Tick Risks; Slow To Take Preventative Actions

by Judy Mae Bingman
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URBANA, Ill. – Ticks, once limited to the northeast region of the United States, are making a westward migration across the U.S. and with them, tickborne diseases that cost the healthcare system up to $1.3 billion a year to treat. Exposure to ticks can happen anywhere - from backyards to parks to agricultural fields.

Agricultural workers who spend significant time outdoors are at great risk for exposure to ticks. Ticks are considered vectors since they carry diseases that they transmit to other organisms.

In the first year of a two-year study by University of Illinois researchers and Illinois Extension professionals, three prevalent tick species in Illinois were studied: deer tick, American dog tick, and Lonestar tick. Diseases associated with ticks include Lyme disease, Rocky Mountain Spotted fever, Powassan virus, anaplasmosis, tularemia, ehrlichiosis, heartland virus, and Alpha-gal syndrome.

Based on previous studies, researchers want to better understand the level of knowledge and prevention practices used by farm staff.

Initial results were collected through on an online survey. The survey is available at go.illinois.edu/ticks and allows participants to record the number and types of ticks they find, as well as their overall knowledge on the prevention of tick bites.

Of those responding to date, 36% of farmworkers indicate they have a low level of knowledge about ticks, says Sulagna Chakraborty, ecology, evolution, and conservation biology doctorate candidate at University of Illinois Urbana-Champaign and researcher for the project. The research also reveals:

- **Source of Information on Ticks**: Currently, 56% of farmers rely on friends and family for information about ticks and the diseases they carry; 48% rely on medical professionals; 40% rely on Extension educational efforts.
- **Attitude**: The survey indicates 38% of respondents expressed concern about tick-borne diseases.
- **Practices**: When a tick is embedded, 76% of respondents say they would use the recommended practice of removing the tick with tweezers; 42% remove with their hands; 8% would consult a physician.
- **Prevention Measures**: 90% of farmworkers surveyed do a self-check for ticks. “This is one of the simplest things one can do if going out of doors,” Chakraborty says.

Additional preventative measures that are recommended include wearing a hat, long sleeve shirts, and long pants; tucking pants inside boots; and wearing light-colored shirts. Only 2% of respondents indicated they use tick repellant, and only 10% wear permethrin-treated clothing, Chakraborty says. Nearly one-quarter of the farmworkers surveyed say they take no precautions.

Both livestock and companion animals that farmers may have are at risk for tick bites and tickborne diseases. Only 28% of respondents use tick repellent on their animals, the survey results indicate.

“By knowing the knowledge gap, we can provide specific training to fill the gap,” Chakraborty says.

Climate change has prompted changes in ticks.

“Ticks are coming up with adaptations that allow them to overwinter the shorter cold season,” Chakraborty says, “and populations are expanding.”

Since 2006, the U.S. has experienced a 10-fold increase in the number of tick-borne illnesses, says Rebecca Smith, associate professor of epidemiology in the College of Veterinary Medicine’sDepartment of Pathobiology at Illinois.

“We’re finding ticks active in January and February where you would never have found them before,” Smith says. “With these warmer winters, ticks can come out of dormancy.

Farmers can adopt preventative practices that would protect them and their livestock and companion animals against tick bites and tickborne diseases.

“Tall grass is a perfect habitat for ticks,” Chakraborty says. Ticks climb high on the grass and wait to grab onto something.

“Invasive plants also harbor ticks,” Smith says, “so being proactive to get rid of invasive plants such as honeysuckle and barberries can be effective.”

Controlled burns also help decrease tick populations.

The second phase of the study will assess Extension professionals' level of awareness regarding ticks and the diseases they carry, then provide training to fill the knowledge gap.

“By equipping Extension staff with the latest best practices for tick identification and remediation, we can better serve our agricultural and natural resource clients,” says Shelly Nickols-Richardson, associate dean and Extension director.

This project is funded by Illinois Extension and the College of Agricultural, Consumer and Environmental Sciences, with financial support from University of Illinois’ Office of the Provost Investment for Growth Program.

Collaborators with Chakraborty and Smith include Nohra-Mateus Pinilla, wildlife veterinary epidemiologist with the Illinois Natural History Survey; Josie Rudolphi, Extension specialist and assistant professor, Department of Agriculture & Biological Engineering; and Teresa Steckler, Extension educator.

First launched in 2018, collaboration grants are part of an ongoing effort to connect campus-based researchers and Illinois Extension field staff to do applied research projects that will improve the quality of life of Illinois residents. The grants focus on addressing critical issues in food, economy, environment, community, and health.