

Sustainable Internal Parasite Control in Cattle

Parasites represent a major challenge to livestock production throughout the world. Internal parasites cause a variety of clinical signs, including weight loss, diarrhea, and death. Other, less obvious parasitic signs, (often referred to as subclinical signs), significantly impact producers. The subclinical signs may include things like decreased weaning weights and lower rates of reproduction.

Although the use of anthelmintic products, commonly called dewormers, has limited the incidence of clinical disease in cattle, the subclinical impact and subsequent economic loss continue to impact the industry. The widespread use of anthelmintics has also raised concerns about the development of parasite resistance leading to loss of product effectiveness.

To address parasite resistance and maintain product efficacy, sustainable parasite control programs must be developed. Effective programs are built upon knowledge of parasite life cycles, sound grazing strategies, and proper product use. It's important to note that sustainable parasite control aims to suppress parasite population below the threshold for economic loss, not completely eliminate parasite populations.

Researchers at Oklahoma State University are currently investigating Oklahoma cattle herds for parasite resistance. A recent study by Drs. John Gilliam, Jared Taylor, and Ruth Scimeca of the OSU College of Veterinary Medicine evaluating Oklahoma beef cattle herds provided evidence that in-



ternal parasite resistance is indeed present in the state.

Beginning in 2020, beef cow-calf producers submitted fecal samples for fecal egg count reduction tests (FECRT). Seventeen herds participated and all major classes of dewormers were represented. Anthelmintic administration practices were not controlled, and producers were encouraged to follow their standard procedures. Fecal egg counts (FEC) were determined using the Wisconsin method with a limit of detection of one egg per gram (EPG). Three herds were excluded from the final analysis as the FEC in those groups were too low.

Of the sixteen groups of cattle included in the final analysis, 13 exhibited resistance based on the average of individual FECRT. Based on the results of this small survey, anthelmintic resistance appears to be widespread in beef cow-calf herds in Oklahoma.

Currently the OSU beef cattle extension and veterinary teams are continuing work in this area. Drs. John Gilliam, Dave Lalman, Paul Beck, and Rosslyn Biggs are conducting a larger survey of Oklahoma herds to determine parasite resistance to different dewormers.

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Recruitment of beef cattle producers is ongoing and interested herds can contact their extension county agricultural educator, area extension livestock specialist, or Dr. Rosslyn Biggs, rosslyn.biggs@okstate.edu for more information on the sign-up.

The current study plans to collect data from at least 50 different groups of cattle dispersed around the state. Samples can be collected from now through first killing frost (generally early November) and then again through spring and summer 2024. Fecal samples will be collected from twenty to thirty animals within the same stage of production. For example, classes of cattle may be mature cows, weaned calves, or replacement heifers. Good handling facilities must be available for safe restraint of all animals and personnel collecting the samples.

The first collection occurs at initial processing/deworming or within seven days prior to that ini-

tial processing/deworming. The second collection occurs ten to seventeen days post-deworming. Samples will be shipped to the laboratory for evaluation and results provided at no cost to participants. Multiple classes of cattle from the same operation can be included in the research study if different anthelmintic products are used. Animals must not have been treated with an anthelmintic product within 60 days of initial sampling.

Anthelmintic resistance is a growing concern in many species and OSU researchers hope to evaluate levels of resistance in Oklahoma beef cattle herds through ongoing studies. Producers and veterinarians are encouraged to participate and reach out with questions. This research is important for the cattle industry in developing parasite management strategies that preserve the effectiveness of dewormers while maintaining cattle production levels for the future.

Dr. Rosslyn Biggs, DVM & Dr. John Gilliam, DVM
OSU College of Veterinary Medicine

Tulsa beekeeping workshop available in September

[Oklahoma State University Extension](#) will host a [Beekeeping Basics Workshop](#) on Sept. 7 from 9 a.m. to 3 p.m. at the Tulsa County OSU Extension Center, 4116 E. 15th in Tulsa.

The event will provide basic information on honey production as well as the care and maintenance of bees. Members of the public are welcome to learn about basic bee and hive care, equipment needs, bee types, hive diseases and health. The workshop will also cover making and selling honey and offer budget guidance on financially managing a beehive operation. Featured speakers include Jon Zawislak, apiculture and urban entomology specialist at the University of Arkansas.

A \$20 registration fee will cover the cost of lunch. To reserve a spot at the workshop, contact the Tulsa County Extension office at 918-746-3700. The class size is limited to 50

participants.

The event is sponsored by the Southern Risk Management Education Center. For more information, contact JJ Jones at 580-332-7011 or jj.jones@okstate.edu.



The workshop's featured guest speaker, Jon Zawislak, will discuss the basics of raising bees and producing honey. (Photo by Todd Johnson, OSU Agriculture)

The pesticide information presented in this publication was current with federal and state regulations at the time of printing. The user is responsible for determining that the intended use is consistent with the label of the product being used. Use pesticides safely. Read and follow label directions. The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Cooperative Extension Service is implied.

PRIVATE APPLICATORS CAN NOW START TESTING AT PSI TEST CENTERS

Private Applicators that need to take the Private Applicator Exam to renew their certification before the December 31 expiration date may now do so at PSI test centers around the state.

Private Applicators should have received a notice from the Oklahoma Department of Agriculture Food and Forestry (ODAFF) if testing is needed.

All applicator testing is to be completed at PSI test centers in state. Private applicators must take a 50 questions closed book test at the PSI test centers.

Testing fees are \$65 per exam for Private Applicators. Once passed, Private Applicator certification cards will be emailed by ODAFF to the applicator. Private applicator certifications renewed will be good through December 31, 2028.

For more information and links to the PSI test centers can be found at <https://extension.okstate.edu/programs/pesticide-safety-education/odaff-pesticide-applicator-testing-procedure/>. (OSU PSEP August 1, 2023)

ODAFF Test Information

Testing will be done at testing centers in multiple locations around the state by PSI Services LLC.

For more information and instructions, please go to <https://bit.ly/3sF4y0x>.

Reservation must be made in advance at www.psiexams.com/ or call 855-579-4643

PSI locations.

- Oklahoma City 3800 N Classen Blvd, Ste C-20, Oklahoma City, OK 73118
- Tulsa 2816 East 51st Street, Suite 101, Tulsa, OK 74105
- McAlester 21 East Carl Albert Parkway (US Hwy 270), McAlester, Oklahoma 74501
- Woodward 1915 Oklahoma Ave, Suite 3, Woodward, OK 73801
- Lawton Great Plains Technology Center, 4500 West Lee Blvd Building 300- RM 308, Lawton, OK 73505
- Enid Autry Technology Center, 1201 W. Willow Rd, Enid, OK 73703
- Ponca City Pioneer Technology Center, 2101 N Ash, Ponca City, OK 74601
- Norman Moore Norman Technology Center, 4701 12th Ave NW, Norman, Oklahoma, 73070

If you have questions on pesticide certification. Please email or call: Kevin Shelton

**405-744-1060 kevin.shelton@okstate.edu or Charles Luper 405-744-5808
charles.luper@okstate.edu**

What's hot and what's not: Mislabeled jalapeno seeds reach gardeners nationwide

Many gardeners were surprised this summer when their jalapeno plants began producing an unidentified yellow pepper.

From Michigan to Oklahoma, Facebook gardening groups flooded with hundreds of posts about the unidentified peppers that vary in flavor and heat level. It's become known nationwide as Peppergate or Jalapenogate.

Workers at the Oklahoma State University Student Farm discovered they had planted some of the mystery seeds after their jalapeno plants began producing what resembles a type of banana pepper. Now, farm manager Lynda Carrier said some of them look more like chili peppers.

"I contacted the seed company, and they responded with an explanation that the packets are filled on semi-automatic equipment, and on very rare occasions, the wrong seed is dropped into the packet," Carrier said.

The company provided a complimentary seeds request form to submit for replacement packets and apologized for the inconvenience. The OSU Student Farm grows and supplies vegetables to Stillwater's food bank, Our Daily Bread, and Carrier said the peppers have been a hit with clients despite the mistaken identity.

Transparency at Sedan Floral

Wholesale plant suppliers are also fielding questions about the unknown seeds.

"I got a couple of calls about it in early June, and then it just blew up," said Ali Cude, office manager of Sedan Floral in Sedan, Kansas. "We immediately went through our seed inventory, looked at what we ordered, what we sowed and what we have on hand."

Sedan Floral is a third-generation family business for Cude's husband, who graduated from OSU and returned to work at the wholesale greenhouse in 2007. It is the 74th largest greenhouse in the U.S., selling to garden centers within 500 miles. Deliveries are made to Oklahoma, Kansas, Colorado, Arkansas, Missouri, Texas and Nebraska.



"Jalapenos are such a big item for us, and banana peppers just aren't," Cude said. "We didn't have enough seed to mix that up in the seed machine. It wasn't mathematically possible."

A call to Sedan Floral's seed vendor indicated the seeds were sourced from a producer in California and that the problem was widespread. Cude sent an email to all of Sedan Floral's customers that provided the vendor's explanation, which was that some jalapeno seed packets had been mislabeled. Beyond acknowledgment of the mix-up, vendors have said little about how it could have happened.

"There are about four companies that sell seed to greenhouses our size, and two different brokers got jalapeno seed from the same source," she said. "But different seed companies that repackage their own seed packets also fell victim to this."

Seeds produced by a breeder are marketed by a broker to greenhouses like Sedan Floral. Mass distribution makes it difficult to identify the problem's origin.

"All pepper seeds look the same, and when you're buying them in packages of 25,000 seeds, you go off the label and don't know if there's something different in it," Cude said.

Tracking the supply chain

In Wichita Falls, Texas, Smith's Gardentown Farm got lucky. None of their jalapeno plants were affected, but that didn't stop general manager Michael Fiore from doing his own research. Like Cude, he asked his seed supplier a few questions that sent him further up the supply

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chain.

“They traced it back to a huge, nationwide distributor,” Fiore said. “They provide seeds to multiple large brokers, and they import seeds from all over.”

His sources indicated the mislabeled jalapeno seeds came from a farm overseas.

“It’s highly probable they originated in China and were repackaged and distributed in California,” he said. “There are ways to get around trade embargoes by giving the seeds to a different company to receive them, and they label them as their own.”

Fiore’s research revealed about five companies control most of the small seeds in the world. Like a lot of monopolized industries, small businesses are often in the dark about product origin. Seeds are purchased through a broker working under a larger broker or distributor who is often owned by a larger company. Tracing back seed lineage becomes impossible, he said.

“Aside from harvesting and growing your own seeds, I’ve lost confidence in seed production. I can’t look at a seed packet on any U.S. shelf now and confidently tell you this didn’t come from overseas. These things switch hands, get relabeled, redistributed and cut up so many times.”

Fiore said this summer’s Jalapenogate has also uncovered another, more serious concern: food safety. Mislabeled pepper seeds have reached almost every corner of the U.S. in a matter of months, demonstrating how fast a product can move across the country.

“Seeing how easily the seeds were distributed across all 50 states is a little scary from a security standpoint,” he said.

Smith’s Gardentown Farm regularly sources products overseas, such as geranium seeds from El Salvador, that have their country of origin disclosed on the packaging, but seeds without a listed source may not be inspected, Fiore said.

“We’re dependent on large corporations and foreign entities,” he said. “This unravels a deeper issue of these major companies that control the entire world of seeds.”

The mystery of the season

Despite the jalapeno disappointment in gardens this year, Fiore said the potential for a jalapeno seed shortage if or when mislabeled seeds are disposed of is much lower compared to other produce that takes longer to grow, such as avocados.

“The good news with seed production is that it can ramp up quickly,” he said. “If you have one viable, true-to-type jalapeno, you can get 50-60 seeds out of it. You’ve got a huge multiplier effect when it comes to re-establishing the supply chain because it’s a fast turnaround time of a couple of months from seed to harvest. It takes decades to get avocado trees up to size to where they’re producing.”

Cude is still shocked at how the strange pepper plants continue to make headlines. She prioritizes transparency with her customers, and although few seed vendors have offered clear explanations, greenhouses are moving on to the fall growing season that includes mums, cabbage and kale.

“People have said they’re really good peppers,” she said. “In the grand scheme of the world, it is what it is, and a lot of people are taking it lighthearted.”



AGRICULTURE

#Peppergate

Many gardeners were surprised this summer when their jalapeño plants grew **unidentified yellow peppers**.

From Michigan to Oklahoma, Facebook gardening groups flooded with hundreds of posts about the mystery peppers.

It’s become known nationwide as **Peppergate**.

The truth about chiggers

Chiggers are a nuisance during the summer months. The little red mites feed on leaves and humans, irritating the skin with itchy, inflamed bites.

Dr. Justin Talley, head of the Oklahoma State University Department of Entomology and Plant Pathology, said any area of high vegetation can support chigger populations because of the humidity that is maintained within vegetative cover. Chiggers can be found in meadows but are usually most prominent in grassy or scrubby vegetation, shaded areas, leaf litter, rotten logs and stumps.

“If you walk through low vegetation, check your ankles, but chiggers could also feed around your waistline,” Talley said. “Chigger feeding sites are anywhere where there may be some kind of tight clothing — waistlines, ankles and sock lines.”

Common misconceptions about chiggers are that they burrow into the skin and can be suffocated to prevent biting.

“Chiggers are non-burrowing mites. They feed on you, leave and then the bite is what causes irritation,” he said. “Avoid substances that you think can suffocate the chiggers because they are simply not there by the time the bite begins to itch.”

Another myth about the mite is that it can transmit disease. Talley said chiggers are at low risk for transmitting pathogens. Severe irritation is caused by compounds in adult chigger saliva that produce a reaction.

No lotions or soaps have been proven scientifically to attract chiggers, but Talley said those that are effective in deterring them include DEET, picaridin or IR3535 when applied to the skin.

“Use products that have at least 20% or higher of these compounds to effectively repel chiggers for extended periods of time,” he said.

To relieve chigger bites, use common antihistamines or creams that counteract the skin’s inflammatory response.



Chiggers are non-burrowing mites and do not transmit disease. (Photo by Shutterstock)

**Garfield County OSU Extension Office
will be closed Monday, September 4th**



CLOSED

LABOR DAY

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Persons with disabilities who require alternative means for communication or program information or reasonable accommodation need to contact Rick Nelson, Ag Educator at (580)237-1228 or rick.nelson@okstate.edu at least two weeks prior to the event.