

# TIMELY TOPICS

OSU EXTENSION - NORTHEAST DISTRICT  
December 2023 – Volume 43 – Issue 12

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## Scrapie

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*Barry Whitworth, DVM, Senior Extension Specialist, Department of Animal and Food Sciences*

Scrapie is a chronic, progressive disease of the central nervous system that affects sheep and goats. Scrapie is the oldest of the group of neurodegenerative diseases known as transmissible spongiform encephalopathies (TSE). Some of the other TSE are Bovine Spongiform Encephalopathy known as mad cow disease, Chronic Wasting Disease which is found in deer, and Creutzfeldt Jacob Disease which is found in humans. TSE are protein-misfolding diseases that lead to brain damage and are always fatal.

The cause of Scrapie is not completely understood, but evidence indicates that an infectious protein referred to as a prion is responsible for the disease. These infectious prions cause damage to the normal prion proteins found in the brain. The mis-folding of the proteins lead to brain damage and the presentation of clinical signs of the disease. Prions are very resistant to destruction, so once in the environment, they are difficult to remove.

Scrapie is believed to primarily be transmitted by the oral route. Typically, lambs and kids might ingest the prion when they come in contact with the infectious agent through placentas and birthing fluids from infected ewes and does. Older animals may be exposed to the prions this way as well. Colostrum and milk are also sources of prions. Other secretions such as urine, feces, saliva, and nasal secretions may contain infectious prions as well. Once ingested, the prions cross into the lymphoid system. The prions will incubate for a long time usually two to five years before entering the nervous system.

Genetics plays a part in Scrapie infections. Certain breeds are more susceptible to the disease due to genetic composition. Genetic testing is available for producers to help them select breeding stock with resistant genes.

Clinical signs most commonly associated with Scrapie are intense pruritis, ataxia, and wasting. Early in the disease, small ruminant producers may notice slight changes in behavior with sheep and goats infected with Scrapie. Initially, animals may have a staring or fixed gaze, may not respond to herding, and may be aggressive towards objects. As the disease progresses, other clinical signs noticed are progressive weight loss with normal appetite, incoordination, head tremors, and intense pruritis. In the terminal stages, sheep are recumbent and may have blindness, seizures, and an inability to swallow. Once initial clinical signs are notice, death usually occurs in one to six months.

The gold standard for postmortem (dead animals) diagnosing of Scrapie is the use of immunohistochemistry test on brain tissues as well as microscopic examination of brain tissue for characteristic TGE lesions. Live animal diagnosis is possible by testing lymphoid tissues from the third eyelid and rectal mucosa scrapings.

There is no treatment available for Scrapie, so prevention is key to controlling the disease. Following biosecurity protocols is a good starting point for preventing Scrapie. Part of the biosecurity plan is to maintain a closed flock and only buy replacement animals from certified Scrapie free flocks. Producers should limit visitors' contact with their animals. Sanitation is important in lambing and kidding areas. Manure and bedding contaminated with birthing fluids and placentas should be disposed of properly. Genetically resistant animals should be used for breeding to produce genetically resistant offspring.

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It should be noted that there is a novel or atypical form of Scrapie. This disease may also be referred to as Nor98 variant. This atypical version of Scrapie was initially found in Norway. It has been diagnosed in the United States as well. The disease is usually only found in a single old animal in the flock or herd. The brain lesions in atypical Scrapie are different from classical Scrapie. Currently, experts believe that natural transmission of atypical Scrapie is not likely.

The United States Department of Agriculture (USDA) has been battling Scrapie for decades. According to recent information from the USDA, the United States (US) is close to accomplishing eradication of the disease. In order for the United States to achieve Scrapie free status, no sheep or goats can test positive for classical scrapie for seven years and a certain level of testing needs to be done each year that represents the sheep and goat populations within the country. Small ruminant producers can assist the USDA eradication efforts by contacting the USDA when they have an adult sheep or goat exhibiting clinical signs of Scrapie or an adult animal dies or is euthanized. Producers should contact the Oklahoma State Veterinarian, Dr. Rod Hall at 405-522-6141 or the USDA Veterinary Services at 405-254-1797. This will aid the USDA in reaching sampling testing goals. There is no charge for the collection or testing of the samples for scrapie.

Scrapie is a disease that needs to be eliminated from the US. Once eliminated, the US will have additional export markets for sheep and goat products. Oklahoma State University Cooperative Extension Service has an informative fact sheet on Scrapie. Please visit the Local County Extension Office and asked for fact sheet VTMD-9135 or producers may view the fact sheet online at <https://extension.okstate.edu/fact-sheets/scrapie.html>. Also, the USDA National Scrapie Eradication Program website has valuable information as well at <https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/sheep-and-goat-health/national-scrapie-eradication-program>.

## References

Cassmann, E. D., & Greenlee, J. J. (2020). Pathogenesis, detection, and control of scrapie in sheep. *American journal of veterinary research*, 81(7), 600–614. <https://doi.org/10.2460/ajvr.81.7.600>

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## Home Grown – Seed Germination Test

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Laura Payne, Horticulture Educator, Payne County

My first seed catalog arrived in the mailbox this week. It's funny how a bunch of papers with pretty, colorful pictures of plants can make a person so happy. Every year I look forward to seeing the new plants being offered. And anyone that knows me, knows it doesn't matter how many seeds I have left over from last year, I'm still going to buy seeds this year.

So, you might ask, how will I know if the seeds I saved from last year will still be viable this year? I will perform a simple germination test on my saved seeds and if they germinate all is good and I'm ready for another planting season.

This simple germination process requires very few supplies. The idea is to create an environment where the seed can remain moist for several days without being so wet that it rots before it germinates.

The easiest way to do this test is to place a couple of damp paper towels in a glass or plastic container (saucers work well) and place a few seeds on top of the paper towel. Cover the seeds with another paper towel and then cover with a lid. The lid should not be airtight, but it is important to use one, as it helps to slow water loss out of the paper towels. Most seeds don't need light for this test, since the only goal is to test for viability, not to grow a plant.

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I prefer to put ten seeds on the paper towel to make it easy to gauge a quick percentage of germination. If six out of ten seeds germinate, then I have a sixty percent germination rate. Which means at sowing time, I may sow a few extra seeds in order to get the number of plants that I need for my garden.

Check on your project each day for germination and make sure the paper towels remain moist. If the paper towels start to dry out, just apply a little mist to rehydrate. Some species will germinate quickly, and some will not. For those seeds that tend to germinate one or two at a time, it can be helpful to remove them as soon as they germinate to help keep fungal issues to a minimum. Just remember to count the germinated seeds you've taken out as viable.

For more information on this or any other horticultural topic, you can contact your local OSU Extension Educator.

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## **What Can We Do on a Dull Winter Day?**

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*Scott Clawson, Area Ag Economics Specialist*

Admittedly, we have had a great start to the winter in terms of weather. But as we turn another month on the calendar where days are a little less bearable and it turns dark with half the day left, are there some things we can still accomplish? One of my favorite quotes is from “Iron” Mike Tyson. He said, “Everyone has a plan until they get punched in the face.” As much as I like the quote, I would challenge some of this logic. A plan is still essential to me. A plan for our vacation, our business, our retirement still provides direction while we are withstanding “punches”. Punches on the ranch lately might be drought, unexpected price moves, or rising input costs. Still, the market looks to be entering a period with strong prices and this can be a big opportunity to have some profitable years. After you throw some wood in the stove and pour black coffee in your favorite cup, here are some possible ideas to kick off your thoughts on a dreary January day.

*Coming out of drought (hopefully), what is the most profitable and/or best use of my forage?*

The drought that has spurred herd liquidation still lingers in some areas. If we assume 2024 will return us to “normal” precipitation levels, what is the best/most profitable use of that forage? Everyone is talking about herd expansion, or simply recovering the cow numbers forgone to drought. To me, how to do that profitably is a much deeper question. The retention of a heifer calf in fall 2023 means passing on the \$1,300+/- that she could have sold for, diverting valuable feed and forage to an asset (the replacement) that does not generate a calf in 2024, then selling a weaned calf in the fall of 2025. This is a delicate balance between creating asset value (bred heifer) and creating cash flow (calf). How many should we keep? Could we keep more than what we need and market a portion to cover the development cost of the keepers and generate some cash flow? The retained heifer could be generalized as an appreciating asset until her time as a bred heifer. Then she is a depreciating asset after that.

There is still some understandable apprehension around buying breds with a big price tag. Across the country, bred values are climbing fast. Especially in areas where drought has been alleviated. The initial cash outlay and current interest rates are barriers to overcome. On the other side of the fence, we will generate a calf (cash flow) as a return to our forage in 2024, Livestock Risk Protection (LRP) can be used to assure a solid calf price in the fall of 2024, and the asset is depreciable on our taxes that we may need to think about as calf prices rise.

At the ranch level, “expanding” could also mean keeping ownership longer through the supply chain. In lieu of more cows could we stay at a lower stocking rate and keep our calf crop through the next summer grazing season or even further? LRP provides price protection options to manage the risk through the longer timeline.

*Is the investment in price protection warranted? How much risk is acceptable?*

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For maybe the first time, cow-calf producers in 2023 have had to decide if and how to use price risk protection in the form of LRP. Markets are still unpredictable as the last couple of months reminded us. As input prices climb, our investment in each of these calves grows too. For example, are we willing to commit +/- \$50/head to insure \$1,250 a head in calf revenues next fall?

*What assets will need to be replaced and what gets priority?*

Input prices can be dissected several ways. One way to look at them is commodity versus non commodity items. For those commodity type items like feed, hay etc. we would expect prices to ebb and flow with production. For instance, a great hay growing season (high hay supply) in our region would make hay cheaper and vice versa. This other group may not act in the same manner. These items like farm trucks, tractors, and equipment have generally been increasing over time. Determining what needs to be replaced and how that will happen could be important. Interest rates have not moved in the favor of ranchers financing equipment lately.

*What story do my records tell?*

Lastly, considering all these prospects, what do my production and financial records say? And if I need to borrow some money to execute a plan, what will they tell the lender? Keeping all these records is not the fun part of the business. A complete balance sheet, cash flow, asset inventory, reproduction records on the cows, and a log of how much hay and feed was provided to the cow herd over the winter are examples of beneficial pieces of information on which management decisions can be made.

If these issues seem daunting, I don't think they should. Not considering these types of things seems even more risky. The one item that we cannot control (cattle prices) is moving in our favor. The rest of the profit equation is left for us to solve. Take some time and put a ranch plan together. Reach out to your local OSU Extension Educator for assistance, we are all willing to help out.

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## Farm Management Resources

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*Brent Ladd, Extension Assistant, Department of Agricultural Economics*

The e-Farm Management website catalogs resources to help inform producers about farm financial management and production, marketing, and risk management topics. This site contains videos, tools, and publications for farmers and ranchers to hone their farm management skills.

One example is the Enterprise Budgets video. This video explains how enterprise budgets can assist the beginning producer evaluate the feasibility of a proposed venture and helps established producers identify areas for improvement. Budgets are a powerful management tool that can help the producer make the right decision by taking some of the guesswork out of farming.


To view this video and find additional information on Enterprise Budgets, visit:

<https://extension.okstate.edu/programs/farm-management-and-finance/e-farm-management-training/enterprise-budgets/>.

More information on this and other farm management topics may be found: 1) by contacting your nearest Extension Educator 2) on the e-farm management website (<https://extension.okstate.edu/programs/farm-management-and-finance/e-farm-management-training/index.html>) or 3) on the OSU Ag Econ YouTube Channel (<https://www.youtube.com/user/OkStateAgEcon>).

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 <b>Value of Gain Calculation</b>						
OK Weighted Average Report 12/15/23						
Weight	\$/lb	Value/hd	Added lb.	Added \$	\$/lb Added	
322	\$ 3.4577	\$ 1,113.38				
380	\$ 3.2834	\$ 1,247.69	58	\$ 134.31	\$	2.32
422	\$ 3.2067	\$ 1,353.23	42	\$ 105.54	\$	2.51
476	\$ 2.9615	\$ 1,409.67	54	\$ 56.45	\$	1.05
526	\$ 2.8135	\$ 1,479.90	50	\$ 70.23	\$	1.40
570	\$ 2.6946	\$ 1,535.92	44	\$ 56.02	\$	1.27
620	\$ 2.4611	\$ 1,525.88	50	\$ (10.04)	\$	(0.20)
674	\$ 2.3394	\$ 1,576.76	54	\$ 50.87	\$	0.94
721	\$ 2.2923	\$ 1,652.75	47	\$ 75.99	\$	1.62
768	\$ 2.1923	\$ 1,683.69	47	\$ 30.94	\$	0.66
818	\$ 2.1871	\$ 1,789.05	50	\$ 105.36	\$	2.11
928	\$ 2.0709	\$ 1,921.80	110	\$ 132.75	\$	1.21
Long Stocker Run		Short Stocker Run		Heavy Stocker Run		
<i>Starting</i>		<i>Starting</i>		<i>Starting</i>		
322	\$ 1,113.38	322	\$ 1,113.38	620	\$ 1,525.88	
<i>Ending</i>		<i>Ending</i>		<i>Ending</i>		
915	\$ 2,170.65	526	\$ 1,479.90	915	\$ 2,170.65	
<i>Total Gain</i>	<i>Δ Value</i>	<i>Total Gain</i>	<i>Δ Value</i>	<i>Total Gain</i>	<i>Δ Value</i>	
593	\$ 1,057.28	204	\$ 366.52	295	\$ 644.77	
VOG		VOG		VOG		
\$ 1.78		\$ 1.80		\$ 2.19		



Brian C. Pugh, Area Agronomy Specialist



Earl H. Ward, Area Livestock Specialist



Barry Whitworth, DVM, Area Food/Animal Quality and Health Specialist



Scott Clawson, Area Ag Economics Specialist

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