



EXTENSION



E-1060

WESTERN DISTRICT FIRES

Feb. 27, 2024 | Overview, Damage Valuation and Recovery Cost



WESTERN DISTRICT FIRES

Feb. 27, 2024 | Overview, Damage Valuation and Recovery Cost

For questions about this report, please contact:

Amy Hagerman

Extension Specialist for Agricultural and Food Policy
Department of Agricultural Economics, OSU Extension
amy.hagerman@okstate.edu | 405-744-9811

Derrell Peel

Extension Specialist for Livestock Marketing
Department of Agricultural Economics, OSU Extension
derrell.peel@okstate.edu | 405-744-9816

OVERVIEW OF WESTERN DISTRICT FIRES

Week of February 26, 2024

On February 26, 27 and 28, 2024, high winds and low humidity created ideal conditions for wildfires that spread rapidly across the Texas Panhandle and into western Oklahoma. The same weather conditions led to smaller fires across the state. Within this 3-day period, 16 fires of varying sizes were combated across the state, affecting a total of 170,271 acres (reported as of March 6)[1]. The largest fire in the two-state area was the Smokehouse Creek Fire, which claimed an estimated 1,059,570 acres in Texas and Oklahoma. The Smokehouse Creek Fire is the largest recorded fire in Texas history. Of that total, the Smokehouse Creek Fire burned an estimated 31,596 acres in Roger Mills and Ellis counties in Oklahoma. However, on the same day, the Catesby Fire burned an estimated 90,699 acres in Ellis County and the Slapout Fire burned an estimated 26,048 acres in Beaver County. Total damages from western county fires were estimated to be \$32.9 million.

This document details losses in Beaver, Ellis, and Roger Mills counties, and estimates preliminary losses for Texas, Harper, Woods and Custer counties combined. Estimates are based on 2024 market values from reports as close to the time of the fires as possible. These estimates may increase as more comprehensive assessments of the damages are completed. The losses incurred in the fires will have significant and long-lasting financial

impacts on operations and families affected. No lasting market impacts on livestock prices at the regional or national level are expected. However, it may exacerbate already low heifer replacement availability. The estimated losses do not account for feed, hay or supplies donated to affected producers or federal disaster programs. The value of the donations and disaster program payments or insurance payments that will offset a portion of the loss to producers was not yet known as of the date of this report.

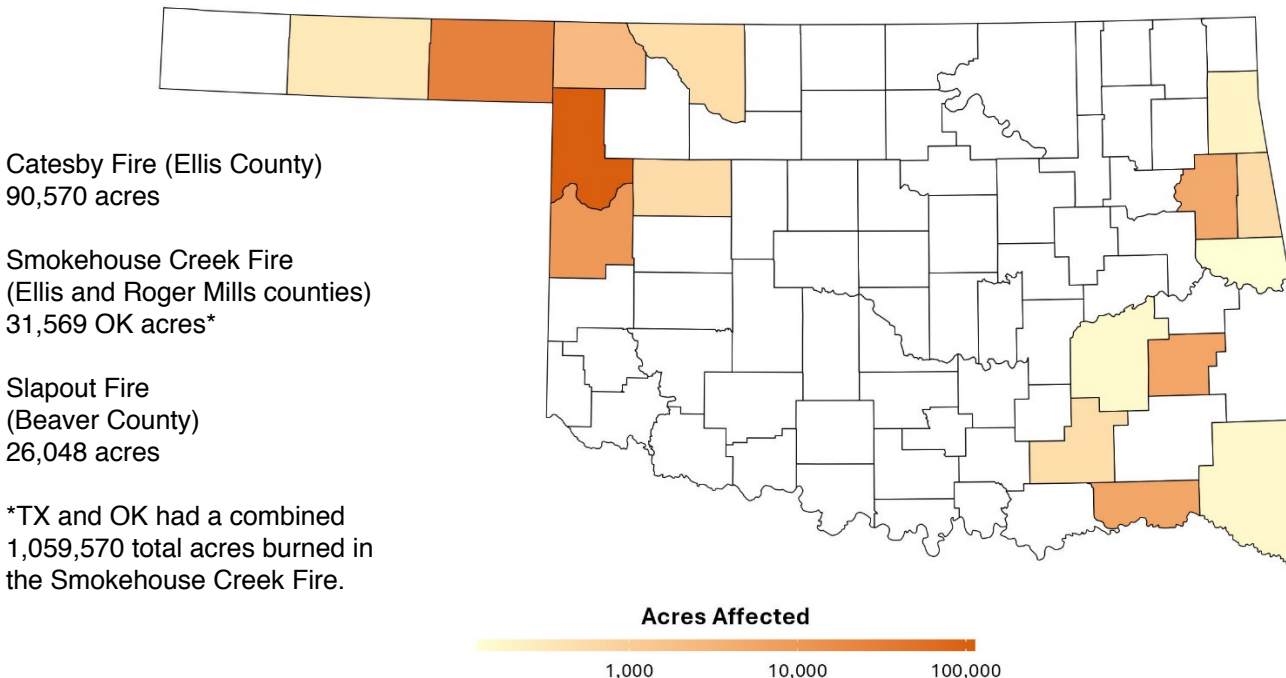
Beaver County – Slapout Fire Preliminary Damage Valuation

March 14, 2024

The February 27 Slapout Fire burned 26,048 acres in Beaver County. Preliminary damages from the fire included the loss of 504 head of cattle, 35,000 bales of hay, 3 occupied houses and 1 unoccupied house, 12 barns and 1 solar array. This is approximately 2.3% of pastureland in the county that has been temporarily removed from production, and 7.4% of the county cow inventory that either perished in the fire or was subsequently culled or euthanized due to injury. Estimated losses based on this preliminary information available as of the date above sum to a total of \$8.73 million in damages, or \$335 per burned acre.

Estimated cattle industry losses in Beaver County include \$1.62 million in fencing costs. This includes damaged fence removal (\$49 thousand) and replacement

Figure 1. Acres burned in fires starting the week of February 26, 2024.



Data Source: Oklahoma Forestry Service Fire Report March 6, 2024. Map developed by OSU Extension.

(\$1.4 million) for 70% of burned pastures and fence repair (\$179,000) for the remaining 30% of burned pastures. Emergency feeding (\$87,000), cattle injury assessment and treatment (\$24,000), and temporarily holding cattle on emergency grazing such as CRP land while pastures recuperate (\$858,000) bring the cost of treating and maintaining displaced cattle to \$969,000. The value of cattle who perished in the fire or had to be euthanized due to injury was estimated as \$1 million, with an additional \$1 million in market value loss for cows that were culled due to fire injury. Carcass disposal was estimated at \$63,000. In addition, the hay that was lost in the fire was valued at \$2.35 million.

The estimated loss of homes was based on county average market value rather than direct comparable market value or replacement value. Barns were estimated based on replacement cost for a moderately-sized barn, not including any machinery or equipment. A total of \$1.7 million in structures lost was estimated. This only includes permanent fixtures, so vehicles, tractors or other personal property are not included.

Ellis County – Catesby Fire and Smokehouse Creek Fire Preliminary Damage Valuation

March 20, 2024

On February 27 Ellis County experienced two separate fire events. The Catesby Fire burned 90,570 acres and a portion of the Smokehouse Creek Fire spread into the part of the county that borders Canadian County, Texas, and Roger Mills County. It is estimated by Extension educators that approximately two-thirds of the 31,569 Oklahoma acres lost due to the Smokehouse Creek Fire were in Ellis County, but that number may vary given the nature of that border in the Antelope Hills area. This brings the total estimated burned area in Ellis County to 112,139 acres. These damage estimates will only account for land currently in agricultural use.

Preliminary damages from the fire included the loss of 674 head of cattle and calves, 15,000 head of cattle displaced from burned pastures, 40,000 bales of hay, 15 occupied or unoccupied houses and 50 barns. This is approximately 12.5% of pasture land in the county that has been temporarily removed from production and 5.4% of the cowherd that either perished in the fire or were culled due to injury. Estimated losses based on preliminary information available as of the date above resulted in a total of \$22.76 million or \$203 per burned acre.

Estimated cattle producer losses in Ellis County include \$6.7 million in fencing costs. Approximately 60% of the fencing in the county is expected to be replaced, which includes damaged fence removal (\$192,000) and replacement (\$5.4 million). Repair cost for the remaining damaged fences is estimated at \$1.09 million. Emergency feeding (\$3.01 million), cattle injury assessment and treatment (\$300,000) and temporarily holding cattle on alternative pastures while burned pastures recover (\$2.5 million) bring the total cost of cattle producer recovery to

\$5.8 million. The value of cattle who perished in the fire or had to be euthanized due to injury was estimated at \$1.39 million with an additional \$612,000 in forced marketing loss. Carcass disposal cost for cattle deaths was estimated at \$84,000. Finally, the value of hay lost in the fire was estimated to be \$2.7 million at current market values for an estimated 70% grass hay and 30% high-quality hay.

The estimated loss of homes was based on county average market value rather than direct comparable market value or replacement value. Barns were estimated based on replacement cost for a moderately-sized barn, not including any machinery or equipment. This resulted in an estimated loss of \$5.5 million for structures lost. No estimate of corrals or working pens was available at this time. This estimate only includes permanent fixtures, so vehicles, tractors or other personal property are not included.

Roger Mills County – Smokehouse Creek Fire Preliminary Damage Valuation

March 19, 2024

On February 27 the Smokehouse Creek Fire spread from Canadian County, TX, into neighboring Roger Mills County, OK. Production systems are closely linked in these two counties with landowners often having pastures or fields on both sides of the state border. Fires burned across close to the same area of Roger Mills County in 2023 and 2024, and, likely, the experience of local producers, emergency services, and the previous reduction in fuel for fire spread contributed to reduced damages in Roger Mills County in 2024. Preliminary damages included the loss of approximately 10,000 acres of land, 19 head of cattle that perished or were subsequently euthanized, 324 head of cattle displaced from burned pastures, 24 burned bales of hay, 4 barns and 1 trailer house that were lost in the fire. Estimated losses based on this preliminary information available as of the date above sum to a total of \$1.07 million in damages, or \$107 per burned acre.

Estimated cattle producer losses in Roger Mills County—not including the damages experienced on land in Canadian County or Ellis County—included \$397,000 in fencing costs. Many fences were replaced in 2023 with metal posts and wire, which reduced the assumed portion of fences that needed to be removed and replaced. Fencing costs were estimated at \$10,000 for burned fence removal and \$281,000 for new fence installation. Fence repairs were estimated at \$85,000. Emergency feeding (\$98,000), cattle injury assessment and treatment (\$25,000), and temporarily holding cattle on alternative pastures while burned pastures recover (\$113,000) bring the total cost of cattle producer recovery to \$376,000. Pasture recovery costs, in particular, may be lower than this estimate given the burned area contained some canyons and that much of the grassland had already had excess fuel (e.g. cedar trees) burned off last year. The value of cattle that perished in the fire

was \$31,000 and included both beef cows and stocker steers. With limited injuries to cows, no forced marketing loss was included in this estimate. Carcass disposal was estimated at \$2,300 for cattle deaths. Hay losses were minimized by storing hay on gravel pads, but an estimated \$1,600 in hay was lost that was already in fields. The estimated loss of barns and a trailer house was estimated at \$403,000 and primarily was driven by barn costs. Barn costs were estimated based on replacement cost for a moderately-sized barn, not including any machinery or equipment. No estimate of corrals or working pens was available at this time. This estimate only includes permanent fixtures, so vehicles, tractors or other personal property not included.

DAMAGE VALUATION AND RECOVERY COST

This section will outline the approach to estimating the values above. Costs were broken into the damages from the fire and the costs of recovering from the fire. Damages were limited to those felt to encompass the largest value loss, and additional damage beyond those accounted for here may have been experienced. Also, these values were based on average values for livestock or for infrastructure like fences and barns. The actual value of damages will vary widely from one agricultural operation to the next. So, these should be viewed as preliminary, and are unlikely to match actual appraisal value of damages by insurance adjusters or other appraisers. Further, an outpouring of donations went to these counties aiding affected individuals. The value of these donations was not accounted for in this estimate because our goal was estimating the value of damages and recovery, not estimating the actual cost to the producer or household.

Losses were valued for cattle deaths, carcass disposal, market value loss from forced culling due to injury and hay that burned.

- **Cattle deaths:** The value of cattle lost was based on average market values of \$2,000 for a cow in the prime of production, and \$1,480 per calf based on what their value would have been at weaning this fall. These numbers can be thought of as the income the producer would not receive due to the fire. Stockers were similarly valued at \$1,480 per head reflecting their value if they were marketed as expected.
 - **Carcass disposal:** The cost of disposing of carcasses from cattle that perish in the fire or were subsequently euthanized due to their injuries was estimated at \$125 per head. This was based on a published paper of carcass disposal due to animal disease in the Texas High Plains [2].
 - **Forced marketing:** When cows did not perish from the fire, but were injured and subsequently culled, an added loss of \$680 per head was included. This accounted for the decline in value from a replacement cow to a cull cow.
 - **Homes, barns and pens destroyed:** The value of buildings lost was based on average market values (not on large lots of land) from February as reported on Zillow in the individual impacted counties. However, if a building was a trailer house or unoccupied, that value was reduced to 25% of the house market value listed on Zillow. Barn values were based on average replacement cost provided by Texas AgriLife Extension. Working pens were based on the value of a reasonable replacement of pens, but do not include a chute, scales, or any other equipment.
 - **Hay destroyed:** Hay loss was based on USDA AMS Hay Report (AMS 3095) on March 1, fair/good quality Bermuda grass hay at \$120 per ton, and good quality meadow grass at \$65 per bale.
- Costs of recovery were broken into fence rebuilding, veterinary care, pasture recovery, and supplemental feeding.
- **Fencing:** Fencing cost was broken into removal and replacement cost for severely damaged fences, and repair cost for fences that were new and/or made with metal posts. Given recent fire activity, there were pastures that replaced fences within the last few years with new, reasonably fire hardy materials (i.e. metal). County Educators provided an estimate of the proportion of fences that would be replaced or repaired. The OSU Extension Custom Rate Survey [3] found the cost of replacing fence, with materials, in Western Oklahoma was \$16,060 per mile. The same survey reported the cost of removing the old fence was \$47.63 per hour. A local fencing company estimated that fence removal required 12 hours per mile, including the time to bury the old fence, for a total cost of \$571.56 per mile for fence removal. For fences that could be salvaged with repairs or replacement of small areas, a cost of \$4,757 per mile (replacement without materials) was used.
- Cattle that were saved from the fire faced three primary challenges: veterinary assessment and care, feeding cost to provide the energy they needed for recovery, and the cost of holding cattle off the burned pasture until enough biomass could regrow.
- **Injury treatment:** It was estimated that a veterinarian would assess every herd at a rate of \$150 per hour for 2 hours per herd. Minor injury treatment for a portion of the herd was estimated at \$50/head and primarily reflected anti-inflammatories or antibiotics. Significant, but non-life-threatening injuries were estimated at \$200/head. Finally, bulls were assumed to need a bull scrotum exam 60 days after the fire at a cost of \$100/bull.
 - **Emergency feeding:** Based on OSU Extension recommendations [4], each cow was assumed to require 15 pounds of hay per day plus 5 pounds of protein

cubes per day. Providing salt and minerals was also suggested. Other strategies were suggested when hay was unavailable or needed to be stretched further, but based on preliminary reports of hay donation speed in these counties the feeding recommendations above were used.

- **Pasture recovery:** Cattle would need to be held somewhere, even with supplemental feeding providing most of their nutrients. Given the time of year, and the moisture that was received after the fires, it was estimated that at least 60 days would be required for pastures to recovery sufficiently. This timeline may be heavily impacted by fencing and the availability of materials and labor to complete repairs or replacement. Using county average native grass grazing rates and rental rates reported in the OSU Extension Pasture Rental Rate Survey [5], the cost to hold cattle for 60 days or an alternative piece of land was estimated at \$62.71/head in Beaver County, \$46.54/head in Ellis County, and \$40.25/head in Roger Mills County. If cattle were moved to nearby counties to hold on pasture or CRP under emergency grazing provisions, these numbers would need to be adjusted.

REFERENCES

- [1] Oklahoma Department of Agriculture, Food and Forestry. "Fire Situation Report – March 6, 2024" Accessed: March 6, 2024.
- [2] Elbakidze, L., L. Highfield, M. Ward, B.A. McCarl, and B. Norby. 2009. Economics Analysis of Mitigation Strategies for FMD Introduction in Highly Concentrated Animal Feeding Regions. *Applied Economic Perspectives and Policy* 31(4): 931-950.
- [3] Sahs, R. 2022. "Oklahoma Farm and Ranch Custom Rates, 2021-2022" OSU Extension CR-205.
- [4] OSU Extension "Emergency Cattle Nutrition Strategies After a Wildfire." Available online at <https://extension.okstate.edu/articles/2024/emergency-cattle-nutrition.html>
- [5] Sahs, R. 2021. "Oklahoma Pasture Rental Rates: 2020-21" OSU Extension CR-216.



Visit us at extension.okstate.edu