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Grasslands and Wildfire Recovery

“After a wildfire, it may appear as if the flames have destroyed all vegetation. This loss of vegetation not only affects its use for livestock feed and wildlife cover, but often causes concern about soil erosion by wind and water. Vegetation helps control erosion by shielding the soil from the impact of raindrops and slowing the amount and velocity of runoff and impacts from wind.

But we should remember that even though the tops of plants are gone, the crowns and roots are still intact holding the soil in place. In sandy soils, some soil movement has been experienced following wildfires, but studies following intense fire and even heavy grazing show that no blowouts or drifts were observed or created. After examining many wildfire sites in subsequent years, no negative impact caused by this minimal movement of soil were observed.”

– John Weir, Oklahoma State University Extension, NREM-2881

Recent wildfires in Kansas (Anderson Creek and Starbuck) have proven this.


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Management considerations following a wildfire include:

- In pastures that were partially burned, apply prescribed fire to the remaining unburned portion to keep livestock from continually over-utilizing the burned area.
- Always use proper stocking rates.
- Alter season of use by avoiding the same areas and plants at the same time each year.
- Rotate livestock between pastures to allow plant recovery before being re-grazed.
- Rotation of salt, mineral and feeding areas to better distribute grazing.
- Before replacing a cross-fence, ask, "Is that the best location for this fence?"
 - Consider terrain, plant communities, water sources, and long-term grazing patterns: an adjustment to a cross-fence location could result in improved management and thus plant community health.
- Monitor to ensure management decisions are encouraging desirable plant growth.

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Management considerations following a wildfire include:

- Some areas may need to be deferred from grazing until plant growth is adequate to support it. This is dependent on precipitation. Remember—if it doesn't rain, plants will not grow whether burned or unburned.
- KSU recovering after wildfire: <https://bookstore.ksre.ksu.edu/pubs/l514.pdf>
 - Considerations for reductions in stocking rates. Unlike previous wildfires, which were closer to growing season, this fire has more months of exposed surface before green-up.

Table 1. Stocking rate guidelines for pastures burned by wildfire occurring any time other than late spring.

Area	Year after wildfire	Stocking Rate	Comments
Flint Hills and east	1	75-100%	Use lower rates during lengthy droughts
	2	normal	
Central Kansas	1	65-70%	Use lower rates during lengthy droughts
	2	90-100%	
	3	normal	
Western Kansas	1	50%	Use lower rates during lengthy droughts
	2	75%	
	3	normal	

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Management considerations following a wildfire include:

- Precipitation in May and June are critical for forage growth.
- Keith Harmony looked at production vs precipitation and found these two months best correlated to current year production.
- Full article starts on page 36: <https://www.ksre.k-state.edu/historicpublications/pubs/SRP1086.pdf>
- Loss of litter and storm intensity may reduce “effective” precipitation infiltrating in the soil.

Figure 3. The relationship of 36 years of rangeland yield and total precipitation in May and June at Hays, KS. The increasing solid line and tight grouping at less than 7 inches of precipitation indicates that rangeland yield steadily increased as May and June total precipitation increased up to 7 inches, after which yields became more scattered.

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Management considerations following a wildfire include:

Harmony monitored the results of a wildfire in NE Ellis County in March 2017. <https://newprairiepress.org/cgi/viewcontent.cgi?article=7901&context=kaesrr>

Table 1. Available dry matter in July of each year prior to the wildfire, during 2017 in the year of the wildfire, and the two years after the wildfire

Year	Yield (lb/acre)	
2015	1583	Average 1773
2016	1963	
2017	1335	
2018	1772	Average 1721
2019	1669	

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Management considerations following a wildfire include:

- Weeds (forbs) will appear, they will diminish with time after fire. No need for spraying.
- Be careful when feeding hay, hay brought in from other regions may contain invasive plants. Limit hay-feeding areas and monitor during recovery. Treat invasive plants as needed.
- Remove any trees not fully burned by the wildfire.

Our Kansas Grasslands are resilient and will recover, just like our communities.

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Contact the local USDA Service Center and County Conservation Districts for additional resources and technical assistance.

USDA NRCS Kansas <https://www.nrcs.usda.gov/wps/portal/nrcs/site/ks/home/>

Kansas Department of Agriculture:
<https://agriculture.ks.gov/news-events/kansas-wildfire-recovery-resources-december-2021>

K-State Research and Extension:

- Wildfire Effects on Grass: <https://www.ksre.k-state.edu/news/stories/2016/04/wildfire041916.html>
- Post Wildfire Recovery: <https://bookstore.ksre.ksu.edu/pubs/l514.pdf>
- Forage Growth: <https://www.ksre.k-state.edu/historicpublications/pubs/SRP1086.pdf>

Oklahoma State University Extension:
<https://extension.okstate.edu/fact-sheets/management-after-wildfire.html>

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