

Aurell, J., Gullett, B., Helder, D., & Elleman, R. (2022). Characterization of emissions from burning methyl-bromide-treated crop biomass. *Journal of the Air & Waste Management Association* (1995), 72(6), 581–591. <https://doi.org/10.1080/10962247.2021.2013343>

a. Alfalfa hay that was grown on a field treated with a methyl bromide and chloropicrin pesticide (at a 98/2 weight ratio) resulted in animal sickness, posing a disposal issue for the harvested feed. In consideration of disposal options, emissions and residues from burning treated and untreated alfalfa hay were sampled and analyzed to provide data for an assessment of potential health and environmental effects. Treated alfalfa hay was tested in parallel with untreated alfalfa in a controlled laboratory combustion facility. Results showed that about half of the bromine and chlorine in the treated hay was emitted and the remaining was retained in the ash. The alfalfa hay burned poorly, with modified combustion efficiencies, the ratio of CO₂ to CO + CO₂, below 0.89. The emission factor for PM_{2.5} was statistically higher for the untreated versus treated alfalfa but the PAHs were doubled in the treated alfalfa. The treated alfalfa had significantly more emissions of polychlorinated dibenzodioxin/dibenzofuran than the untreated alfalfa by a factor of 10, but less polybrominated dibenzodioxin/dibenzofuran. The high Br concentration in the treated alfalfa biomass may have resulted in formation and emission of mixed halogen compounds which were unable to be analyzed for lack of standards. Comparison of volatile organic compound emissions were unremarkable with the exception of MeBr where emissions from the treated alfalfa were over 300 times higher than the untreated biomass. The potential complications due to emissions and permitting of an open burn or contained incinerator left options for landfilling and feedstock blending for handling the treated alfalfa. Implications: This paper illustrates the issues agricultural managers must deal with concerning the combustive disposal of contaminated crops. A method is presented whereby combustion of contaminated crops can be assessed for their suitability for disposal by open air or enclosed burning.

Joshi, O., Poudyal, N. C., Weir, J. R., Fuhlendorf, S. D., & Ochuodho, T. O. (2019). Determinants of perceived risk and liability concerns associated with prescribed burning in the United States. *Journal of environmental management*, 230, 379–385. <https://doi.org/10.1016/j.jenvman.2018.09.089>

a. While prescribed burning is a proven tool in the management of forests and grasslands, its use has been limited due, in part, to potential risks that may result in legal liability, property damage, and personal injury. The purpose of this study is to understand the factors that shape landowners' and fire professionals' perceptions of risks associated with prescribed burning activities. The data for this study were collected from active prescribed fire professionals involved in Prescribed Burn Association (PBA) activities in 14 Southern and Mid-western states. Perceived risk was higher among respondents with higher levels of concern related to safety and weather but lower among respondents with more experience in burning activities. Sociodemographic variables such as age and income were not significantly correlated with risk perception. These findings are useful for better understanding how landowners and fire professionals perceive risk and offer insight into how perceived risk affects decisions to apply prescribed burns.

Packman, H., & Packman, H. (2018, April 23). What can farmers do about climate change? Prescribed Burns - National Farmers Union. National Farmers Union - United to Grow

Family Agriculture. <https://nfu.org/2018/04/23/what-can-farmers-do-about-climate-change-prescribed-burns/>

a. Fire is often thought of as a destructive and uncontrollable natural disturbance, causing catastrophic damage to agricultural operations of all types. But did you know that fire can actually be used as a tool to protect and increase productivity on your land? Prescribed burning is an advanced land management technique that, when executed correctly, can mitigate many hazards producers face as the climate changes, including wildfire events, the proliferation of invasive species, and dwindling biodiversity on pasture and rangeland.