

Study gives new perspective on agricultural plastic, debris burning, and air quality

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Smoke emissions from debris piles (background) with plastic covers (not shown) were measured in burning mixtures of wood and polyethylene plastic (foreground). The addition of the plastic to the burning wood had little to no effect on trace gas and particulate emissions. Credit: U.S. Forest Service/ David Weise

To reduce fire hazard in the United States, wildland managers often utilize the silvicultural practice of mechanically cutting woody shrubs and suppressed trees (ladder fuels). These cuttings and other postlogging debris are then burned during periods of low fire danger in order to dispose of the material. To improve the burning and minimize hazardous air pollutants, managers often cover all or part of the debris



pile with low-density polyethylene plastic, commonly referred to as agricultural plastic, in order to keep water out. A recent study published in the *Journal of the Air and Water Association* shows that inclusion of agricultural plastic in debris piles has no effect on smoke emissions.

Co-author Dr. David Weise, research forester from the U.S. Forest Service Pacific Southwest Research Station at Riverside, Calif., designed and conducted this study with a team of scientists from the University of California Riverside College of Engineering to examine if agricultural plastic covers affect smoke emissions from burning piles thus having an additional impact on <u>air quality</u> beyond that of wood smoke.

The controlled laboratory study simulated debris piles that contained agricultural plastic in varying amounts to see if they could detect an effect. Burning conditions were optimal because the wood was very dry which encouraged good burning. The scientists added up to 25 times the amount of agricultural plastic found in normal piles and used state of the art real-time instruments to measure the gaseous and particulate emissions. After analyzing the measurements, they did not detect differences in the emissions for the vast majority of compounds they measured.

Based on the results of this and previous studies and literature reviews, including the small amount of agricultural plastic in silvicultural debris piles as is currently practiced does not appear to affect the emissions produced under optimal burning conditions. "This study supports the hypothesis put forth a decade ago that burning agricultural plastic in debris piles would not add significantly to the <u>emissions</u> from a debris pile. We still need to conduct experiments to determine if there is an improvement in burning efficiency beyond simply keeping the piles dry." Dr. Weise said.



This research provides a key piece of information for wildland managers using on site burning to dispose of accumulated forest debris in a safe manner under favorable conditions with limited impact on air quality, visibility and human health.

More information: Read the full article: <u>www.treesearch.fs.fed.us/pubs/45923</u>.

Provided by USDA Forest Service

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