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MU study finds black walnut husks pose no threat to forage production

COLUMBIA, Mo. -- Livestock producers who are considering nut crops on their pastureland should not be concerned that application of black walnut husks will adversely affect the growth of forage, according to a study from the University of Missouri Center for Agroforestry.

"Husks from black walnut hulling stations can be safely applied to the forage species orchardgrass and red clover," the study said. "Negative growth responses from the application of husks to other forage species is not expected, although these species have not been tested."

Although black walnut husks and hulls contain alleopathic agents -- metabolites and other compounds that can hinder plant growth -- these degrade rapidly when exposed to air, the study found.

Gene Garrett, director of the agroforestry center, oversaw the graduate students who performed the research. "There are millions of pounds of nuts harvested each year," he said. "That results in a lot of piles of husks, and that can be an environmental problem if the leachates get into the streams. We've demonstrated that if you take those hulls and spread them on the land, there are no environmental problems, and at the same time there's a benefit because you get increased forage production."

Initial trials with orchardgrass involved three levels of walnut husk applications: at zero, 15 and 30 tons per acre. The results "suggested that alleopathic activity was not a major factor when husks are applied."

A second study was established with red clover to determine how long it takes such substances to degrade to a less harmful derivative. "Fresh green husks were peeled from nuts and squeezed to remove the juice. This process would represent the worst possible scenario that would occur if all soluble materials in the husk were flushed into the environment immediately following the application of fresh husks" - a highly improbable occurrence in nature.

Nearly all the red clover seedlings treated immediately with fresh husk juice quickly died. However, "seedlings treated after two hours showed remarkably different survivorship, suggesting that the alleopathic agent that brought about the initial damage is rapidly degraded

upon exposure to air." Seedlings that were treated with four-hour-old juice showed few signs of inhibition, and treatment after 12 hours of exposure to air "may have resulted in some stimulation."

Subsequent field trials at the MU Horticultural and Agroforestry Research Center in New Franklin, Mo., supported the findings of the preliminary study. Red clover to which 15 tons of walnut husks was applied yielded a better harvest than the red clover with no application. Red clover treated with 30 tons of walnut husks per acre yielded even better. The best results for orchardgrass were observed at the 15 tons-per-acre rate.

"Clearly, research indicates that black walnut husks do not pose a serious threat when applied to pastureland," the study concluded. "While rates of application up to 30 tons per acre have been tested, the optimum application rate would appear to be between 15 and 30 tons per acre."

Source: Gene Garrett (573) 882-3647