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Grazing management and buffer strips impact pasture phosphorus runoff

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Cattle shade structures and waterer are at the top of the slope with flumes at the base of each watershed and auto samplers housed in adjacent sheds.

One of the main environmental concerns with surface application of poultry litter to pastures is phosphorus (P) runoff. Most of the P runoff from pastures is in the soluble form, which is contributing to accelerated eutrophication in waterbodies.

Research has shown benefits of implementing buffer strips and rotational grazing to reduce P runoff from pastures. However, few long-term studies have been conducted on the effects of a combination of best management practices, such as rotational grazing with buffer strips on P losses from pastures.

A 14-year study published in the *Journal of Environmental Quality* evaluates the effects of grazing management strategies and buffer strips on P runoff from pastures receiving surface applications of poultry litter. Both continuous and rotational grazing had similar effects on P runoff. However, implementing unfertilized buffer strips or unfertilized fenced riparian buffer strips reduced P loads in runoff from fields under rotational grazed management by 36 and 60%, respectively, whereas converting pastures to hayfields reduced P runoff by 49% compared with continuous grazing.

The use of unfertilized buffer strips or unfertilized fenced riparian buffer strips combined with rotational grazing or converting pastures to hayfields is effective for reducing P runoff in U.S. pasture systems.

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Anderson, K.R., Moore, P.A., Pilon, C., Martin, J.W., Pote, D.H., Owens, P.R., … DeLaune, P.B. (2020). Long-term effects of grazing management and buffer strips on phosphorus runoff from pastures fertilized with poultry litter. *Journal of Environmental Quality*, 49, 85–96. **https://doi.org/10.1002/jeq2.20010**

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