Effects of Landscape Position, Fertilizer Source and Surface Manipulation on Phosphorus Losses in Runoff. (S11-franklin162122-Poster)

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Abstract:

Minimizing loss of phosphorus in runoff from pastures will benefit the producer and abate potential eutrophication of aquatic systems. This work was conducted to find a mechanism to reduce runoff and to determine the relationship between dissolved reactive P (DRP) in runoff and phosphorus source. Sixteen fescue plots (1.5 m2) were fertilized to provide the recommended rate of P for tall fescue in low soil test P soils. Two P sources, triple superphosphate (TSP) and broiler litter (BL) and two mechanical operations, aeration and no aeration were factorially combined to generate four randomly applied treatments within each of four landscape blocks. Runoff samples were collected in toto after each of two simulated rainfall events (50 mm/hr) and analyzed for DRP and volume. Fescue plots fertilized with TSP lost significantly more DRP than plots fertilized with BL. Although DRP loss from plots receiving broiler litter was 35% lower when plots were aerated than when not aerated, the difference was not statistically significant because of a large variability. These results suggest that it may be worthwhile conducting additional studies to evaluate the effect of aeration on the quality and quantity of surface runoff from grasslands fertilized with broiler litter.

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