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Evaluation of Buffer Strip Effectiveness at Mitigating Water Quality Impairment from Animal Feeding Operations

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Abstract Text:

Animal feeding operations (AFOs) have often traditionally been situated on surface water for ease of livestock watering. Water quality impacts from these operations and the mitigation benefits from relocating these operations have been well documented. However, moving fencing and infrastructure can be expensive and disruptive to livestock management. For this reason, it is important to understand which best management practices (BMPs) and which elements of those BMPs are most important for mitigating water quality impacts. The current study is evaluating the effectiveness of BMP implementation on 4 AFOs in Montana at mitigating E. coli, total suspended solids, and nutrient impacts on surface water. Preliminary observations indicate buffer strips have effectively reduced contamination to surface water originating from AFO runoff. In addition, preliminary results indicate notable decreases in E. coli loading to surface water adjacent to AFOs during baseflow conditions in the absence of runoff.

Impact Statement:

This project has evaluated the effectiveness of best management practices (BMP) to provide insight for efficient implementation of future BMP projects in Montana. The results of the study will help guide NRCS planners to work effectively with livestock producers to mitigate water quality impacts from AFOs.