

Impact of Liquid Hog Manure Application on Community Composition of Mixed Prairie and Fescue Grasslands

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Recently, hog production facilities have expanded into south-central Alberta, an area dominated by less productive marginal lands supporting a mix of native range communities and associated tame pastures. This change in location of hog-based intensive livestock operations has created questions over where and how to dispose of liquid hog manure.

Historically, animal manures have been applied to agronomic lands in more mesic areas of the province, an option that is logistically unavailable in semi-arid regions. As a result, it has been proposed that liquid hog manure be applied to native rangelands and tame pastures in semi-arid areas. Before this is done on a large scale, it is imperative that proper guidelines be established for this process.

Current and ongoing research in south-central Alberta examines how two native range types respond to the application of liquid hog manure. The objective was to determine how liquid hog manure can be applied to native rangelands without sacrificing their ecological integrity and long-term sustainability. The two native range communities being studied are representative of mesic fescue grasslands and xeric mixed prairie. Response of non-native exotic species and overall species composition is being monitored to determine plant community response to manure application. On each of the two range types, five rates and two methods (broadcast vs. injected) of application are being tested. Preliminary data suggests that certain plant species, including pasture sage and creeping grasses, are more adept at capitalizing on excess nutrients available as a result of manure application.

Implications: These results suggest that the addition of liquid hog manure to native rangelands in south-central Alberta may be a viable option, provided that care is taken to ensure that appropriate levels and methods of application are utilized.