

## **Conservation Innovation Grant Project Abstract FY 2020**

*Applicant:* University of Vermont and State Agriculture College

*Technical Contact:* Kirsten Workman, UVM Extension

*Administrative Contact:* Donna Brown, UVM Extension

*Duration:* 24 months - 10/1/2020 to 9/30/2022

*Federal Funding Request:* \$84,374

*Non-Federal contributions:* \$84,388

**Project title: Innovations in Manure Management - Assessing innovative manure management techniques for reduced nutrient losses in forage production.**

Geographic location: Addison and Franklin counties in Vermont (HUC-8# 04150408 & 04300102)

Manure applications on perennial forage crops present a unique risk to water quality. Methods to get manure below the surface without damaging the crop are limited, therefore the majority of liquid manure applied to hay crops in Vermont are surface applications, where nutrients are at most risk for runoff with excessive rainfall. Farms currently are planning manure applications, per their 590 standard Nutrient Management Plans, based on manure analysis from previous seasons. Depending on the amount of rainfall received into storage pits, manure nutrient concentrations can vary. This can lead to over or under applications of manure nutrients – both of which can have consequences for water quality. Over applications of manure nutrients can lead to increased runoff or leaching potential. However, under applications can limit yields, and leave producers with more manure and less storage capacity, putting pressure on fall manure applications to get storages empty before winter manure spreading bans begin in December. This project will assess the impact on runoff from the use of two grassland manure injectors (one in Addison County and one in Franklin County) and continue to promote farmer adoption of injecting manure on perennial forage crops. In addition, it will calibrate and track new precision manure sensing technology currently being used by a professional custom manure application business. The deliverables will be as follows:

- Assess impact on surface runoff from injected manure applications on two farms in Vermont using a mobile field rainfall simulator.
- Compare runoff results to current coefficients in the Vermont P-Index and adjust, if necessary, to more accurately attribute phosphorus loss from injected manure applications.
- Calibrate and monitor new precision manure sensing technology with laboratory analysis of manure and comparisons to sensor.
- Quantify impacts of using ‘live’ manure sensing to make manure applications vs. current practice of using last year’s manure test to apply to this year’s crop on the field, farm and NMP level for one farm in Addison County.
- Share results with farmers, service providers and agencies.

This project addresses the Vermont state **CIG Priority #1 – Water Quality**. Specifically, the first subtopic, “Innovative approaches to management, application and/or treatment of manure on farms.”