

Interim Report

C2021-0034: Tantramar Community pasture to demonstrate benefits of improved pasture management.

Submitted By: New Brunswick Soil and Crop Improvement Association

Submitted To: New Brunswick Department of Agriculture Enabling
Agricultural Research and Innovation Program

Date: February 11, 2021

1. Project Title

Tantramar Community pasture to demonstrate benefits of improved pasture management.

2. Project Team

The project team will consist of the following individuals:

1. Zoshia Fraser, New Brunswick Soil and Crop Improvement Association: Project Oversight
2. Cedric MacLeod, Canadian Forage and Grassland Association: Project Oversight support to NBSCIA
3. John Duynisveld, AAFC: Contract Technical Advisor and Data Analyst
4. Tanya Dykens, AAFC: Knowledge and Tech Transfer support
5. Adam Campbell, Ducks Unlimited Canada: Head Conservation Delivery Atlantic Region
6. Matt Beal, Tantramar Community Pasture: Manager
7. Dr. David Burton, Dalhousie University
8. Brenda McLoon, New Brunswick Cattle Producers: Administration Management
9. Allison Finnamore & Trudy Kelly Forsythe, Cultivating Communications: Communications Support
10. Camryn Trenholm, Summer Student

ABSTRACT/RÉSUMÉ:

The Tantramar Community pasture project aims to demonstrate the benefits of improved pasture management through rotational grazing on beef pasture land and to validate increases in soil health and carbon sequestration rates. In 2020, cross fences were installed and the pasture was able to complete the avoided conversion of grasslands protocol for carbon credit generation. The results of their protocol are found in Table 1 (below). Soil health samples did show differences from 2019-2020 however more data is required before these results can be attributed to grazing pattern changes. Future soil samples will be tracked via GPS to ensure greater accuracy in results.

Le projet de pâturage communautaire de Tantramar vise à démontrer les avantages d'une gestion améliorée des pâturages au moyen du pâturage tournant sur les pâturages bovins et à valider les gains en matière de santé des sols et de taux de séquestration du carbone. En 2020, des clôtures transversales ont été installées et le

pâturage a pu respecter le protocole de conversion évitée des prairies pour la création de crédits carbone. Les résultats de ce protocole sont présentés dans le tableau 1. Les échantillons d'analyse de santé du sol ont révélé des variations par rapport à la période 2019-2020, mais des données complémentaires sont requises avant d'attribuer ces résultats à des changements dans le mode de pâturage. Les futurs échantillons de sol seront suivis par GPS afin d'assurer une plus grande précision des résultats.

3. Time period

This report covers activities from April 1, 2020, to March 31, 2021.

4. Objectives of Project

1. To demonstrate the pasture productivity gains that can be achieved with the use of rotational grazing in New Brunswick on the degraded soils that dominate the majority of the land base managed by the New Brunswick beef sector.
2. In partnership with the Canadian Forage and Grassland Association and Dalhousie University, validate increases in soil health and carbon sequestration rates on New Brunswick pastures that can be achieved through enhanced grazing management.
3. In partnership with Ducks Unlimited, establish a process to validate future increases in the Ecological Goods and Services being generated by enhanced grazing management within New Brunswick grassland ecosystems.

5. Project Deliverables

1. Demonstration of the seasonal forage yield and quality increases that can be achieved on New Brunswick grazing lands with the use of Rotational Grazing.
2. Quantification of increased soil health parameters and soil carbon sequestration rates in New Brunswick marshland grassland soils as a result of applying rotational grazing.
3. Establishment of a quantification methodology for assessing the Ecological Goods and Services being generated by New Brunswick marshland grassland managers, managed using enhanced pasture management practices.
4. A report, which provides the results and necessary information to support the defined objectives and deliverables, and a copy of all resulting products from the funded activities, must be submitted to the Project Officer no later than the claim date. Once the final report

is submitted, the outputs and deliverables will be compared to and verified against those noted in this offer.

6. Summary of Progress

Starting the first week of June, the pasture team began installing cross fences on the Tantramar community pasture. The team successfully installed one cross fence per week leading to the establishment of 6 large paddocks. Yield data was taken before the first grazing pass with botanical separations being completed. This data set was intended to serve as a baseline for pasture production. However, given the 2020 drought, yield data collected during the growing season may not accurately reflect the yield potential of the pasture before rotational grazing. For this reason, in 2021 we will monitor not only the rotationally grazed section of the pasture but also the upper portion which continues to be managed under continuous grazing. Table 1 shows the season yield and the results of botanical composition.

Table1: Average forage yield of the Tantramar Community Pasture and botanical composition based on regrowth samples.

Season Yield (kg/ha)	% Grass	% Weeds	% Dead	% Legume
2874	55	24	17	3

Background sets of soil health data were collected in the fall of 2019 and 2020. Unfortunately, due to time constraints and a lack of communication GPS data for samples sites could not be obtained. Going forward all future soil samples will be taken from geo-referenced sampling locations to better track changes in the soil health. Table 2 shows the means of soil health data collected in 2019 and 2020.

Table 2: Background soil Health parameters collected on the Tantramar pasture in 2019 and 2020.

year	Paddock	Active Carbon	Total Carbon	Total Nitrogen	Aggregate Stability	% Sand	% Silt	% Clay
2019	1	592	7.74	0.55	60.4	23	54	22
2020	1	1320	11.37	1.02	81.1	7.8	51	40
2019	3	561.88	3.84	0.27	28.93	11	53	35
2020	3	853	5.57	0.6	67	3.8	74	22

The major challenge of 2020 was the season-long drought. The severity of the drought led to reduced water levels in ponds throughout the pasture, with some paddocks being left without water. While the mud in the pond beds of other paddocks posed a real danger to grazing cattle with several becoming lodged in the mud. As a result, the rotational grazing plan was abandoned partway through the second grazing cycle, in lieu of getting the cattle where water could be made available. This challenge was also

addressed this year with the help of Ducks Unlimited. Two new watering systems were installed on the pasture in the fall of 2020. These watering systems will allow the further subdividing of paddocks one three and four, which we feel will help to address another challenge we encountered this year, teaching the cattle to rotate. The smaller paddocks will make herding the cattle in the first few moves of the season much easier and smoother.

Plans were made to have a field day at the pasture in the fall of 2020. However, due to a regional spike in COVID-19 cases we were forced to postpone the field day not once but twice. In the end, we had a virtual seminar series paired with four local NBSCIA annual general meetings in Sussex, Moncton, Chignecto and Central. The events featured Karen Haugen-Kozyra, who presented on how the Beef/Forage Sector can play a role in meeting sustainability goals, including the role of Carbon sequestration in grasslands. We also had Jonathon Alcock present the avoided conversion of grasslands protocol to the membership in a zoom update on January 18th. We hope the global pandemic will allow us to invite producers for a grazing workshop in 2021.

7. Adjustments

Upon further consultation with Ducks Unlimited, it was determined that they no longer undertake species richness and ecological studies required to develop a quantification methodology for assessing the Ecological Goods and Services being generated by New Brunswick marshland grassland managers. Due to this, we were unable to establish a baseline before the implementation of rotational grazing and we will be unable to determine or identify any quantifiable increases to Ecological Goods and Services as a result of improved grazing management. Consequently, the third deliverable will be removed for subsequent years.