RESEARCH PROTOCOL: PASTURE REGENERATION & SOIL HEALTH 2018

Does High Density Grazing as part of Adaptive Multi-Paddock Grazing Have Merit in Ontario?

Farmer-researcher

Tony McQuail, Meeting Place Organic Farm

This document outlines the steps that Tony will follow to execute his research project, *Does High Density Grazing as part of Adaptive Multi-Paddock Grazing Have Merit in Ontario*, including design, execution, data collection and data sharing. It also serves as a Memorandum of Understanding between Tony and EFAO.

Background

Carefully managed rotational grazing is one approach to grazing that is gaining increased recognition for its many benefits. This grazing approach uses short grazing intervals with relatively high animal stocking densities followed by long rest periods, which are designed to allow for plant recovery, promote optimal plant communities and protect against erosion. Recent research shows that adaptive multi-paddock (ADP) grazing completely offsets emissions from the grazing systems such that soil C sequestration from these systems may help to mitigate climate change (Stanley et al 2018). This is in addition to the benefits associated with daily gains, profitability and animal welfare (Hannock 2017).

Given the adaptive nature grazing, however, methods vary and impact the extent of these benefits (Hannock 2017). High intensity grazing “mob” grazing, for example, is a more intensive type of rotational grazing. A mob system is characterized by ultra-high stocking densities (greater than 100,000 pounds of bodyweight per acre), short durations (one day or less between rotations) and long rest periods (usually at least 45 days of growth) (Hannock 2017). Grazers in other parts of the world report great success with ultra high intensity mob-style grazing, especially with respect to the fate of standing forage (trampled vs grazed) and soil improvements. There is data from North America, however, that indicates mob grazing isn’t always superior, especially with respect to daily gains, profitability and greenhouse gas emissions (Hannock 2017).

To optimize his grazing, Tony wants to assess the benefits of high intensity grazing as part of his adaptive multi-paddock approach. Specifically, he wants to use a mob system as “a hit and a boost”, such that management will go back to less dense rotational grazing after the boost from the trampling and intensity of the mob approach.

Experimental Design

To test high intensity grazing as part of his AMP approach, Tony will rotate his herd in high density one day a week. For the first round of grazing, Tony will conduct 4-6 replicates (1/week) of high intensity grazing and use a rising plate meter to calculate dry matter.

Control - 6 days a week, less intensively grazed paddocks before or after the high intensity paddock: Approximately 14 cows and calves plus 12 yearlings and 6 two year olds = 45 SAU's on approximately a half acre moved once a day - giving a stocking density of 90 SAU/s/acre or 90,000 lbs/acre

Treatment - 1 day a week, high intensity paddock: Approximately 14 cows and calves plus 12 yearlings and 6 two year olds = 45 SAU's on approximately a half acre with 6 subdivisions being moved 6 times a day - giving a stocking density of 540 SAU/s/acre or 540,000 lbs/acre.

Tony will focus on pasture regrowth in his control and his treatment. For each round of high intensity grazing, Tony will follow this method and measurements:

- **Mark the area** that was intensively grazed with flags and/or stakes.
- Take **photos** before, during and after the grazing period
- Record the **recovery period of the patch**, i.e. how long does it take for the forage species to reach flowering or blooming
- Measure the amount going into both the controls and the high density test and measure the residual left as well as the regrowth.

Rising Plate Meter

Tony will use the rising plate meter to estimate in control and treatment plots:

1. Amount of forage available for grazing
2. Amount grazed and trampled
3. Amount of regrowth

Points on how to use, what to avoid: https://www.youtube.com/watch?v=A5YwUErMNhQ

Materials and Research Expense Budget. Prices are approximate; NA or in-kind for any materials that you already own or have access to. Please indicate if you intend to give any of the supplies to EFAO's Tool Library for others to use after you are finished with them.

Material	Quantity	Unit	Total Cost	EFAO's Tool Library (Y/N)
Rising Plate Meter	1		In kind	N

Deadline for data and photo submission:

October 31, 2018 or earlier if possible

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Memorandum of Understanding

Please refer to **efao.ca/research-mou** for Memorandum of Understanding.

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