Conclusions & Recommendations

Overall the trial was a success! At both sites, the increase in forage productivity from the cattle and horse manure applications was equal or greater to the chemical fertilizer. Although the 34-0-0-11 fertilizer performed well, the custom fertilizer outperformed it by the end of the trial.

The results of the demonstration trial were definitely impacted by the weather. Both of the 2009 and 2010 growing seasons were relatively hot and dry, limiting re-growth of the pasture forage.

Soil testing at the end of the trial indicated that both sites were still very nitrogen deficient. If these pastures are going to be used extensively, additional fertilizer is recommended to achieve optimal pasture productivity. When this is not economically feasible, rotational grazing would more evenly distribute the nutrient deposition from manure and urine.

The positive impact that the livestock manures had on the forage vegetation really emphasized that using manure as a fertilizer may ultimately increase pasture production, and thus improve overall economic viability.

Acknowledgements

This project was funded in part by the Investment Agriculture Foundation of BC through Agriculture and Agri-Food Canada's Advancing Canadian Agriculture and Agri-Food (ACAAF) program. The BC Ministry of Agriculture was another important partner in this project. This project was sponsored and funded by the Smithers Farmers' Institute. Other funding support came from the Bulkley Valley Cattlemen's Association, the Pleasant Valley Cattlemen's Association and the Northern Saddle Club. This project would not have been possible without the generous in-kind contributions of Al and Rosalie Brandsma and Rene and Joyce Dieleman, Paul Davidson, Matthew Taylor, Norm Dueck, Smithers Feed, Mark Perry and Jane Lloyd-Smith, and Chris Hassell. Finally, thank you to Eileen Ewald for helping with the field portion of this trial.

Agriculture and Agri-Food Canada, the BC Ministry of Agriculture and the Investment Agriculture Foundation of BC, are pleased to participate in the delivery of this project. They are committed to working with their industry partners to address issues of importance to the agriculture and agri-food industry in British Columbia.

Field Day held in June 2011.

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Pasture Fertilization in the Bulkley Valley

Based on the Results of a Local Demonstration Trial

Funding provided by:

Canada

Investment Agriculture Foundation of British Columbia

British Columbia

Overview

Despite good intentions, it is common for well-used, older hay fields and pastures to get nutritionally depleted over time. This is partially resolved in the Bulkley Valley by the application of chemical fertilizer and/or livestock manure.

Chemical fertilizer may be cost-prohibitive for many producers. As a result, there is an interest in determining the efficacy of manure applications for maintaining or enhancing forage productivity on older pastures.

Strip fertilized with cattle manure in the spring—clippings were taken from each treatment type in 2009 and 2010.

The primary purposes of this demonstration trial were:

- to see if there is a visible difference in pasture productivity when commercial fertilizer blends are compared with horse and cattle manure applications,
- to compare the timing of fertilizer applications between spring and fall, and
- to examine ways to reduce environmental risk when using manure as fertilizer.

Fertilization Options in the Bulkley Valley

Chemical Fertilizers

Custom blend fertilizers are formulated based on soil test results. Depending what goes into them, custom blends may be more expensive to buy initially, but they are more cost effective in the long run as you only pay for what you need.

Generic fertilizers (usually 34-0-0-11 for grass pastures) are readily available. The most obvious response when using this fertilizer is the immediate uptake of nitrogen. The disadvantage to using this fertilizer is that it does not ensure long-term soil health or increase the productivity of legume pastures.

Soil sample collection in 2011.

Manure

Livestock manure provides an inexpensive source of nutrients and organic matter. It is most cost effective when sourced from the same farm and applied on pastures close to the manure source. Fall applications of cattle and horse manure were the most effective treatment type in this Demonstration Trial. Although only some of the nutrients in manure are available for immediate plant uptake, the high organic matter content provides a long-term source of nutrients, helps to maintain soil moisture and improves soil structure.

Demonstration Trial Results

- Forage biomass noticeably increased in the strips with the fall applications of cattle and horse manure, followed by the custom blend chemical fertilizer;
- Natural variation in soil nutrients and differences in vegetation was observed throughout both sites used in the trial;
- Control strips (no fertilizer) were lower in all the macronutrients at the end of the trial;
- Final soil test results indicated that the dairy cattle manure used was likely low in sulphur;
- Phosphorus was nearing excessive levels in some areas on one site due to long-term manure applications. Regular soil testing would ensure that the rate of manure applied to this field could be reduced if necessary; and
- The majority of the fertilizer regimes increased forage productivity, especially on the site that was very nutrient deficient.

A field day was held on June 15, 2011 so local producers could come and view demonstration trial results.