

Date:
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Double Treatments at Double M Ranch

"Fertilizer just doesn't pay for us in dry years."

*Mike McConnell,
Dawson Creek*



Judy Madden taking time during a day of sorting cattle to discuss plot.

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Original Objectives

In fall of 2000, Mike McConnell and Judy Madden approached the PRFA of BC to set up some comparisons of nutrient additions to their hay field. They had been managing for grass yield with fall applications of nitrogen (46-0-0 at 100 lb/ac), but wondered if there were other nutrients they should be considering. They also wanted to see if the alfalfa winterkill trend could be reversed.

Field History

The field had been ploughed in 1995, and seeded to green feed oats with phosphorus fertilizer applied at 60 lb/ac for 2 years. In 1998, it was seeded to alfalfa (~7 lb/ac) and meadow brome (~2 lb/ac) with a cover crop of green feed oats and 23-24-0 fertilizer (60 lb/ac). Nitrogen fertilizer was applied at 100 lb/ac most falls (46-0-0 in 1999, 2000, 2002).

Treatments & Methods

Mike and Judy divided their hay field into 8 strips (9 ac each). The strips represented 2 replicates of the following treatments:

Treatment A & E: Control, no nutrients applied.

Treatment B & F: N-P-K-S fertilizer blend with the analysis (20-41-70-12) applied at 230 lb/ac.

Treatment C & G: Sulphur (S95) only at 80 lb/ac.

Treatment D & H: Potassium (KCl or 0-0-45-0) applied at 75 lb/ac.

Bench marks were set up in each of the treatments, where monitoring was done over the season. Soil samples were taken to determine field variability. Growth was monitored and photographs taken. Yield were measured by both hand clipping samples and by field scale estimates.



AgroSource partnered with us to spread fertilizer treatments in the fall of 2001.

Location: SW 11-79-16-6

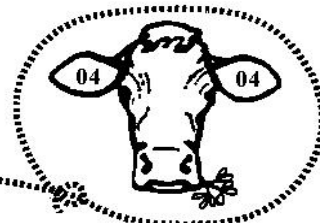
Soil Landscape Type:

Murdale soil: a well drained, loamy soil on weakly calcareous, morainal till with gentle slopes.



Mike & Judy extended stakes between treatments for visibility during haying & monitoring.

Peace River Forage Association
of British Columbia





Treatment A: Control in 2003.



Treatment B: N-P-K-S applied.



Treatment C: Sulphur only

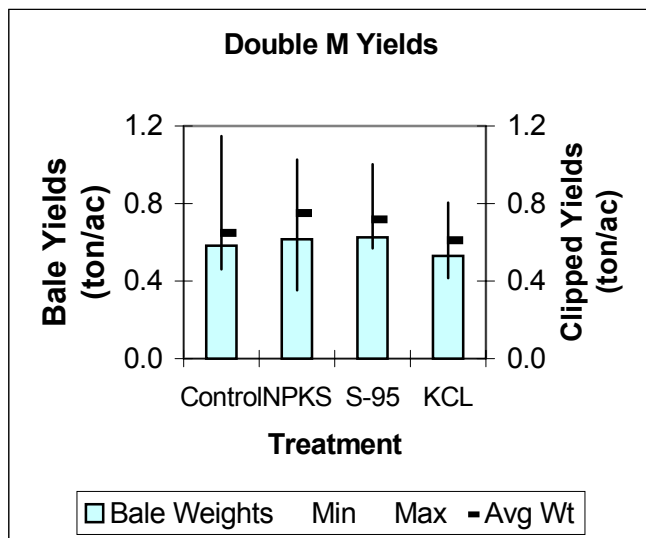


Treatment D: Potassium only

2002 Hay Yields

Yields were poor in Bessborough area in 2002 due to droughty conditions. The hand clipped yields indicate the kind of variability in this field (*lines on graph at right*). There were very small yield differences between treatments but not significant given the variability (*length of line above and below average*).

The field scale yield of bales showed no advantage to applying fertilizer in dry years (see *bars on graph at right*).



Yields at Double M Ranch showing both field scale bale weights, Aug 10, 2002 (*bars on graph*) & hand clipped samples, July 17, 2002 (*lines on graph*).

Plant Counts & Trends in 2003

There were slight changes in plant populations showing up in early 2003 where nutrients had been applied in 2001. Treatment A or the control had the most weeds and bare ground (*see photo at top left*). and least # of alfalfa plants (*see table to right*) on June 5, 2003. Adding nitrogen (Treatment B) or sulphur (Treatment C) increased the growth of the brome grasses (*see photos at left*). Applying potassium increased grass growth in some areas but not in others (*Treatment D photo at left*).

Alfalfa Plant #s / m ²		
Treatment	Alfalfa plants	Range
A	5	1-9
B	9	3-16
C	11	8-15
D	8	6-10

All 3 fertilizer treatments resulted in slightly better alfalfa counts. However these counts were quite variable and are all below the thresholds for reseeding alfalfa. If they reseed, Mike and Judy will seed a grass for hay other than meadow brome since it needs a lot of moisture to reach cutting height.

Plant counts done on June 5, 2003. Meadow brome was 10-12" high at 3 to 5 leaf stage. Grass growth thicker at B, C and D.

Change in Plans

With the continuing droughty conditions from 2000 to 2003 and their grazing options used up by June, Mike and Judy decided to turn their herd into the hayfield plot and graze it. With the BSE situation magnifying their need for feed, the economics were not there to continue with the plots.

We learned at both this plot and Clarkes' plots, that perhaps the nutrients need to be applied earlier in the life of the hay stand to prevent or reverse winterkill trends.

Compiled by: Sandra Burton & Julie Robinson in April, 2004.

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