



San Juan County

WASHINGTON STATE UNIVERSITY
EXTENSION

Beaverton Fertilizer and Lime Trial 2017

Table 1. Forage Yield and Quality With and Without Fertilizer (K+SOP and Bone Meal)

	No Fertilizer ± SD	With Fertilizer ± SD	P-Value
Total Dry Weight (lbs./acre)	5255 ± 2086	5524 ± 690	0.694
Crude Protein (%)	5.2 ± 0.6	6.0 ± 0.4	0.022*
Acid Detergent Fiber (% ADF)	40 ± 1	38 ± 1	0.013*
Neutral Detergent Fiber (% NDF)	63.3 ± 0.8	61.2 ± 1.9	0.011*
Relative Feed Value (RFV)	85 ± 2	90 ± 4	0.006**
Total Digestible Nutrients (TDN)	56 ± 1	58 ± 1	0.015*
Digestible Protein (%)	0.8 ± 0.6	1.6 ± 0.4	0.022*
Digestible Dry Matter (% DDM)	57.5 ± 0.8	59.1 ± 0.9	0.014*
Dry Matter Intake (DMI)	1.9 ± 0.0	2.0 ± 0.1	0.004**
Digestible Energy (MCAL/kg)	2.45 ± 0.05	2.55 ± 0.05	0.013*
Metabolizable Energy (MSCAL/kg)	2.03 ± 0.05	2.12 ± 0.05	0.015*
Net Energy Lact. (MCAL/kg)	1.24 ± 0.03	1.29 ± 0.03	0.019*
Net Energy Maint. (MCAL/kg)	1.62 ± 0.04	1.71 ± 0.05	0.014*
Net Energy Gain (MCAL/kg)	0.96 ± 0.04	1.04 ± 0.04	0.013*
Phosphorous (%)	0.13 ± 0.07	0.12 ± 0.02	0.874
Potassium (%)	1.34 ± 0.29	1.77 ± 0.12	0.003**
Calcium (%)	0.47 ± 0.05	0.41 ± 0.02	0.022*
Magnesium (%)	0.23 ± 0.02	0.21 ± 0.01	0.147

Mean plus or minus standard deviation (SD)

*p-value <0.05, **p-value <0.01, ***p-value <0.001



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Table 2. Forage Yield and Quality With and Without Lime

	No Lime \pm SD	With Lime \pm SD	P-Value
Total Dry Weight (lbs./acre)	5301 \pm 1587	5478 \pm 1527	0.797
Crude Protein (%)	5.6 \pm 0.7	5.6 \pm 0.5	0.897
Acid Detergent Fiber (% ADF)	39 \pm 1	39 \pm 2	0.747
Neutral Detergent Fiber (% NDF)	62.4 \pm 2.0	62.1 \pm 1.6	0.759
Relative Feed Value (RFV)	87 \pm 4	88 \pm 5	0.784
Total Digestible Nutrients (TDN)	56 \pm 1	57 \pm 2	0.727
Digestible Protein (%)	1.2 \pm 0.7	1.2 \pm 0.5	0.897
Digestible Dry Matter (% DDM)	58.1 \pm 0.8	58.4 \pm 1.5	0.728
Dry Matter Intake (DMI)	1.9 \pm 0.1	1.9 \pm 0.1	1.000
Digestible Energy (MCAL/kg)	2.49 \pm 0.05	2.51 \pm 0.09	0.722
Metabolizable Energy (MSCAL/kg)	2.07 \pm 0.05	2.08 \pm 0.09	0.749
Net Energy Lact. (MCAL/kg)	1.27 \pm 0.03	1.27 \pm 0.05	0.792
Net Energy Maint. (MCAL/kg)	1.66 \pm 0.04	1.68 \pm 0.08	0.694
Net Energy Gain (MCAL/kg)	0.99 \pm 0.04	1.01 \pm 0.07	0.681
Phosphorous (%)	0.13 \pm 0.05	0.12 \pm 0.04	0.632
Potassium (%)	1.56 \pm 0.34	1.56 \pm 0.30	0.993
Calcium (%)	0.46 \pm 0.05	0.43 \pm 0.05	0.330
Magnesium (%)	0.22 \pm 0.02	0.21 \pm 0.02	0.444

Mean plus or minus standard deviation (SD)

*p-value <0.05, **p-value <0.01, ***p-value <0.001

Trial Methods

11/11/16 - Applied Lime (calpril) @ 500 lbs./ acre

5/10/17 - Applied organic fertilizer 40 lbs. N, 130 lbs. P, 165 lbs. K per acre as K+SOP (0-0-50) @
330 lbs./ acre; Bone Meal (4-13-0) @1000 lbs./ acre

7/14/17 - Sampled forage yield and quality

7/15/17 - Hayed

For more information please contact Brook Brouwer at brook.brouwer@wsu.edu.

Access to the Beaverton Preserve for this research was provided by the San Juan County Land Bank.