Table 5. Example of Nitrate Intake Worksheet for Ruminants

	A *Daily Intake As Fed*	*B* *% Moisture*	*C* *% Dry Matter*	*D* *Lb DM Intake Daily*	*E* *Lb Feed Water*	*F* *Feed NO_3-N Content*	*G* *Content Factor*	*H* *mg of NO_3-N Intake*
Calculation:	*Lb*	*Test*	*100-B*	*AxC/100*	*AxB/100*	*PPM*	*Given*	*DxFxG*
A. Feed Item[a]								
Corn silage	28.6	65	35	10.0	18.5	1700[b]	.454	7718
MML haylage	26.8	50	50	13.4	13.4	460	.454	2798
Grain mix	20.0	12	88	17.6	2.4	48	.454	384
_____							.454	
_____							.454	
_____							.454	
_____							.454	
_____							.454	
_____							.454	
Feed Total				41.0	34.3			10900

[a]Include expected pasture intake in all diets using such

[b]Amount in a single meal must be limited due to a content of 1100 ppm or higher. See Table 4 for details.

B. Drinking water contribution (for average cow at 1300 lb BW and producing 60 lb of 3.7% milk)

Expected total water intake[a]	270	(I) [60 x 4.5]
Feed water (Total E)	34	(J)
Drinking water (I-J)	236	(K)
Mg NO_3-N from drinking water:		(L)

K x Water NO_3-N as ppm or mg/l

Example: 236 x 8 x .454 = 857 (L)

C. Total mg NO_3-N intake daily (M)

Total H + L

Example: 10900 + 857 = 11757 (M)

D. NO_3-N content of total diet as % DM[b] (N)

[(M/454,000) ÷ Total D] x 100

Example: .0259 ÷ 41 x 100 = .063 (N)

[a]See Table 7 for expected water intakes.

[b]See Table 8 and the text for interpretation

(continued on next page)

Table 5. Example of Nitrate Intake Worksheet for Ruminants (continued)

E. Adjustment of ration to control NO_3-N content of diet[b]

Desired level in TRDM, including water: _____% (P) —*see Table 8 for guide*
Assumed desired level in this example .05% (P)
Current content (N) .063% (Q)
Content to be reduced (R)
Q - P = R
Example: .063 - .050 = .013% (R)

Amount to be reduced (S)
D x R/100 = S
Example: 41 X .00013 = .00533 (S)

Difference in content of NO_3-N of high and low forage (T)
High forage (F) - Low forage (F) / 10,000
Example: (1700 - 460) / 10,000 = .1240 (T)

Lb forage dry matter to be exchanged (U)
S ÷ T/100 = U
Example: .00533 ÷ .00124 = 4.3

New high NO_3-N forage DMI (V)
(Old) D - U = V
Example: 10 - 4.3 = 5.7

New as fed amount of high forage
V ÷ C/100
Example: 5.7 ÷ .35 = 16.3 for corn silage

New low NO_3-N forage DMI (W)
(Old) D + U = W
Example: 13.4 + 4.3 = 17.7 (W)

New as fed amount of low forage
W ÷ C/100
Example: 17.7 ÷ .50 = 35.4

Restriction on single meal dry matter intake for high NO_3-N forage[c]:
Corn silage @ 1700 ppm content
Maximum intake = .67 ÷ cwt BW (X) —*from Table 4*
Single meal max in lb FDMI (Y)
Max x cwt BW = Y
Example: .67 X 13 = 8.7 (Y)

Comparison
Y vs V
8.7 max is larger than V (5.7) — Thus, corn silage could be fed in one meal.
If daily amount V is greater than Y, then corn silage should be fed in more than one meal.

Choose a desired risk level of NO_3-N in total ration dry matter that enables removal of silages or haylages at a rate that prevents molding and heating in the silo. When this is not feasible, it may not be possible to feed the high nitrate forage.

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[a]See Table 7 for expected water intakes

[b]See Table 8 and the text for interpretation

[c]See Table 4 for possible need for maximum single meal intakes for forages containing 1100 ppm NO_3-N or higher