

Figure 1. The range in forage fiber allowed in rations is dependent on the amount of concentrate in the ration, according to the CNCPS model. Grass always has a larger range than alfalfa.

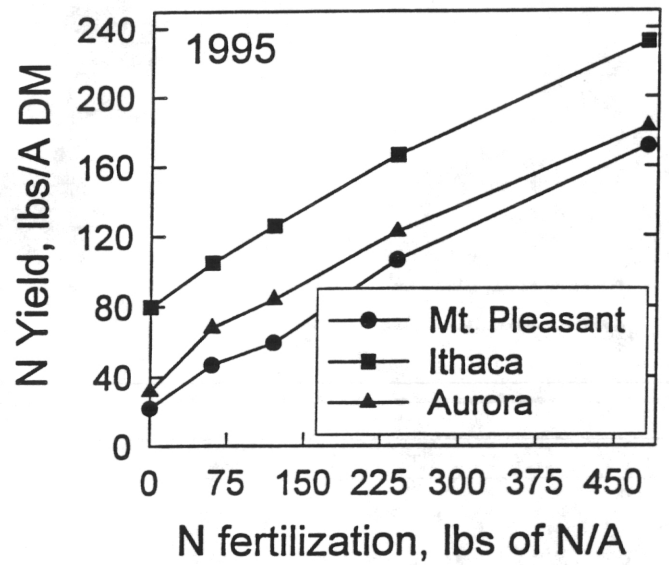
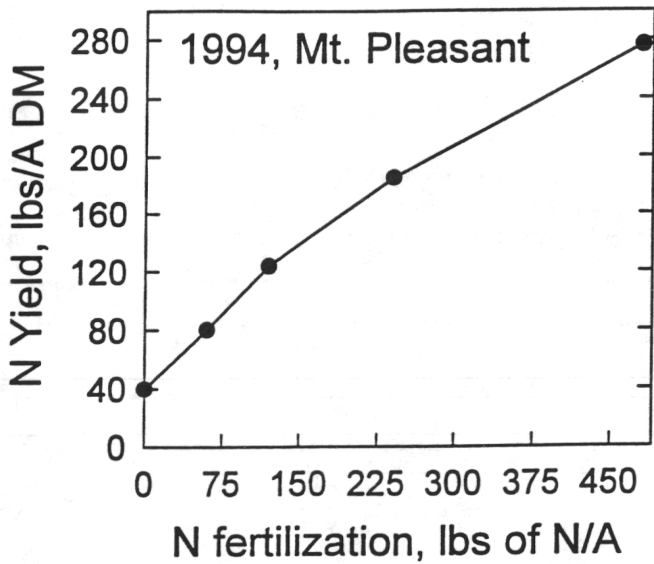
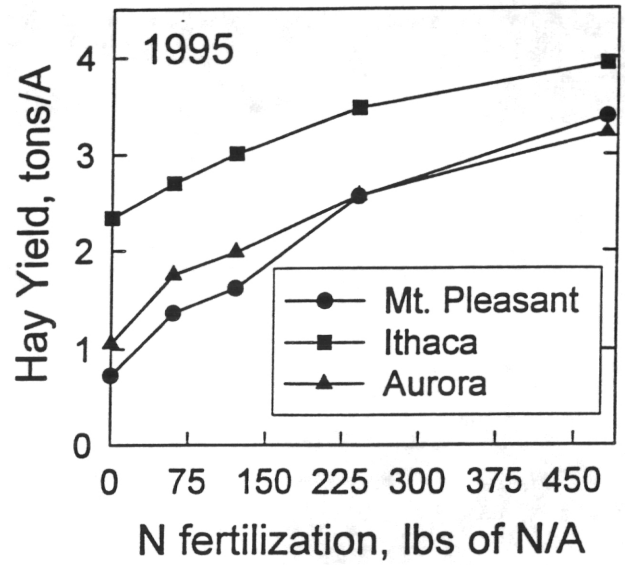
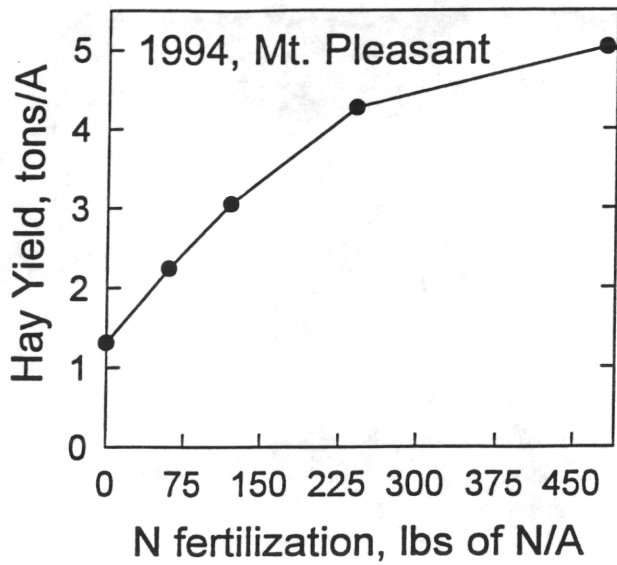


Figure 2. Hay and N yields in 1994 at one site and 1995 at 3 sites. Yields are averaged over species and cutting managements.

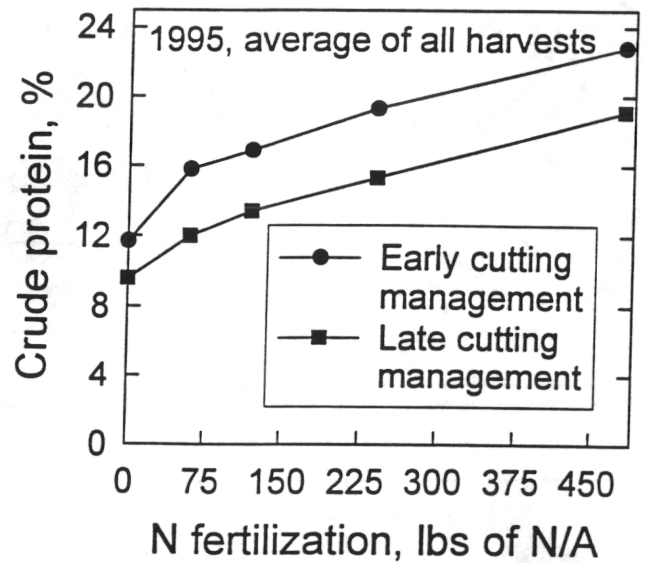
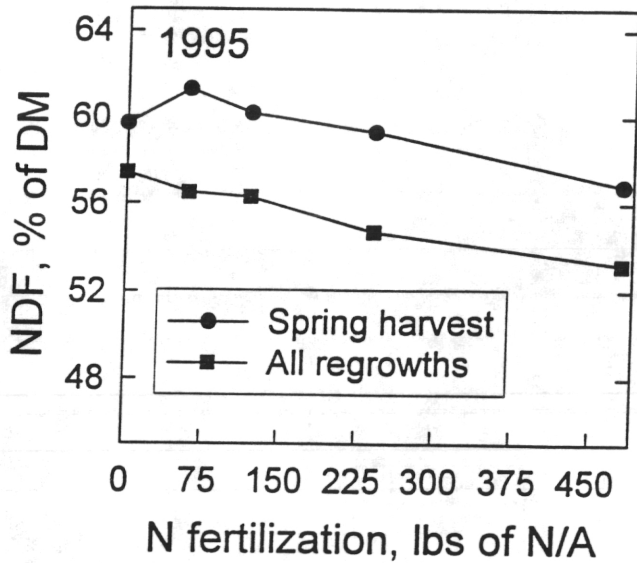
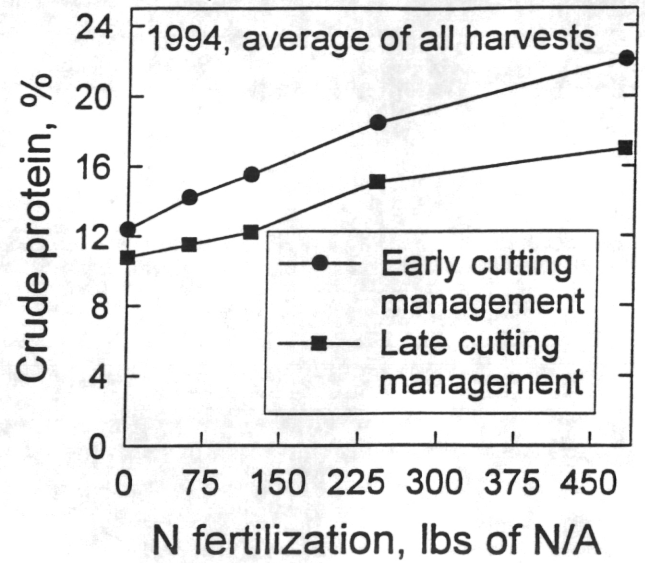
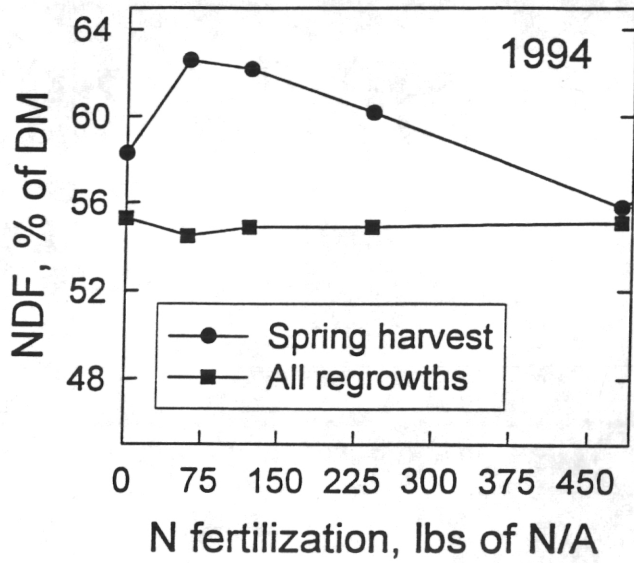


Figure 3. Neutral detergent fiber (NDF) concentrations comparing spring growth with all regrowths. Crude protein (CP) concentrations comparing early and late cutting managements.

Table A1. Nitrogen management and harvest management of perennial grasses: Site characteristics.

	Site		
	Aurora	Ithaca	Mt. Pleasant
Elevation, ft.	830	960	1650
Soil type	Lima loam	Collamer very fine silt loam	Langford channery silt loam
Drainage	Moderately well drained	Moderately well drained	Moderately well drained
Date of grass establishment	5/14/94	5/22/94	5/10/93
Soil status (as of April, 1995) ¹			
pH	7.65	6.97	6.90
Soil P status	Low	High	High
Soil K status	Low	Medium	Very High
OM%	4.10	3.24	6.88
Soil status (as of Nov., 1995) (480 lbs N/A plots only)			
pH	7.66	6.39	6.70
Soil P status	High	High	High
Soil K status	Low	Medium	Medium
OM%	4.36	3.81	7.25

¹ Plots were fertilized for P and K according to soil test recommendations in early May, 1995.

Table A2. Nitrogen management and harvest management of perennial grasses:
Experimental design and treatments.

Experiment: Split-split plot randomized complete block design with 4 replicates.

Treatments

Main plot	Grass Species (Timothy and Reed canarygrass)
Split plot	N fertilization (0, 60, 120, 240, and 480 lbs N/year) N applied in spring: 0, 60, 80, 120, and 240 lbs. N applied after 1st cut: 0, 0, 40, 60, and 120 lbs. N applied after 2nd cut: 0, 0, 0, 60, and 120 lbs.
Split-split plot	Harvest management (early and late) Early cut: at approx. 55% NDF Late cut: at approx. 65% NDF 1st harvest: Late cut approx. 7-10 days after early cut 2nd harvest: Late cut approx. 14-20 days after early cut 3rd harvest: Late cut approx. 21-40 days after early cut (actual harvest date affected by rate of regrowth)
Manure application:	40 tons manure/acre (split applied before and after 1st cut) 40 tons manure + 480 lbs N/acre (Manure applied to 4 replicates of reed canarygrass at Aurora and Ithaca)
Herbicide application:	1 pt/acre Banvel applied to all sites on 10/19/95 (for control of clover in low N plots)

Table A3. Nitrogen management and harvest management of perennial grasses: Harvest Dates.

Harvest	Early/Late cut	Aurora	Ithaca	Mt. Pleasant
<u>1994</u>				
1	E			5/26
	L			6/9
2	E			6/22
	L			7/11
3	E			7/20
	L			9/19
4	E			9/19
N applied in spring				4/27
<u>1995</u>				
1	E	5/26	5/22	6/1
	L	6/6	6/2	6/7
2	E	6/26	6/19	6/29
	L	8/8	7/11	7/28
3	E	8/8	7/28	8/17
	L	9/27	9/8	10/12
4	E	9/27	9/8	10/12
N applied in spring		5/2	5/1	5/8
Manure applied in spring		5/4	5/2	

Table A4. Nitrogen management and harvest management of perennial grasses: Weather data.

	Aurora			Ithaca			Mt.Pleasant	
	GDD ₄₁ ¹	Precip. ²	NormalP ³	GDD ₄₁	Precip.	NormalP	GDD ₄₁	Precip.
1994								
April							175	3.76
May							338	3.33
June							768	7.19
July							915	2.57
August							736	9.19
Sept.							521	4.37
Total (Apr.-Sept.)							3453	30.41
1995								
April	121	2.24	3.00	117	2.18	2.91	95	2.43
May	510	1.36	3.23	411	2.64	3.31	396	2.70
June	874	1.20	4.00	785	2.09	3.77	747	2.82
July	998	3.54	3.11	965	2.62	3.45	913	2.80
August	948	5.58	3.58	912	1.05	3.44	905	0.84
Sept.	559	2.64	3.66	507	1.94	3.53	512	2.95
Total (Apr.-Sept.)	4010	16.56	20.58	3697	12.52	20.41	3568	14.54

¹ Growing degree days, base₄₁.

² Precipitation in the current year.

³ 30 year average precipitation. Data not available for Mt. Pleasant.

Table A5. Yield of dry matter and N, as influenced by grass species, N fertilization and cutting management, Mt. Pleasant, 1994.

	Reed canarygrass		Timothy			
	Hay Yield ¹ tons/A	N Yield lbs/A DM	Hay Yield tons/A	N Yield lbs/A DM		
N Fertilization ²						
0	1.29 ³	45.1	1.34	35.4		
60	2.27	88.8	2.22	72.9		
120	3.06	133.7	3.04	112.1		
240	4.16	196.0	4.40	172.6		
480	5.09	302.4	4.98	246.1		
Cutting Management ⁴						
Early	2.85 ⁵	163.7	3.04	124.9		
Late	3.50	151.7	3.35	123.0		
N fertilization, lbs of N/A						
	0	60	120	240	480	Sig.
Hay Yield, tons/A	1.32 ⁶	2.24	3.05	4.28	5.03	L
N Yield, lbs/A DM	40.0	80.3	123.6	185.1	276.1	LQ
Grass Species						
	<u>Reed canarygrass</u>	<u>Timothy</u>	<u>Significance</u>			
Hay Yield, tons/A	3.17 ⁷	3.19	NS			
N Yield, lbs/A DM	157.7	123.9	NS			

1 Tons of hay at 12% moisture.

2 Actual N applied per acre.

3 n = 8; means of 4 field replicates and 2 cutting managements.

4 Early and Late cutting managements.

5 n = 20; means of 4 field replicates and 5 N fertility levels.

6 n = 16; means of 4 field replicates, 2 species and 2 cutting managements.

7 n = 40; means of 4 field replicates, 5 N fertility levels and 2 cutting managements.

Table A6. Yield of dry matter and N, as influenced by grass species, N fertilization and harvest management by species, 1995.

	Reed canarygrass		Timothy	
	Hay Yield ¹ tons/A	N Yield lbs/A DM	Hay Yield tons/A	N Yield lbs/A DM
<u>N Fertilization²</u>				
Aurora, NY				
0	0.88 ³	31.0	1.21	32.8
60	1.58	67.5	1.91	68.4
120	1.78	84.1	2.20	84.0
240	2.45	131.4	2.69	113.4
480	3.32	209.6	3.16	162.3
Ithaca, NY				
0	2.45	94.4	2.22	65.1
60	2.81	118.7	2.59	90.9
120	3.05	135.7	2.97	116.4
240	3.63	180.1	3.33	153.4
480	4.10	260.9	3.78	202.9
Mt. Pleasant, NY				
0	0.70	23.5	0.66	16.7
60	1.22	46.6	1.41	43.6
120	1.42	57.2	1.64	55.4
240	2.25	103.2	2.66	100.1
480	3.10	167.9	3.32	155.8
<u>Cutting management</u>				
Aurora, NY				
Early ⁴	1.89 ⁵	105.8	1.97	89.6
Late	2.11	102.3	2.50	95.6
Ithaca, NY				
Early	2.92	161.7	2.88	130.1
Late	3.49	154.3	3.07	121.4
Mt. Pleasant, NY				
Early	1.62	82.7	1.69	73.0
Late	1.86	76.7	2.18	75.7

¹ Actual N applied per acre.

² Tons of hay at 12% moisture.

³ n = 8; means of 4 field replicates and 2 cutting managements.

⁴ Early and Late cutting managements.

⁵ n = 20; means of 4 field replicates and 5 N fertility levels.

Table A7. Yield of dry matter and N, as influenced by grass species and N fertilization, 1995.

	N fertilization, lbs of N/A					Sig.
	0	60	120	240	480	
<u>Aurora, NY</u>						
Hay Yield, tons/A ¹	1.06 ²	1.76	1.99	2.57	3.23	
N Yield, lbs/A DM	32.0	68.0	84.1	122.4	182.6	
<u>Ithaca, NY</u>						
Hay Yield, tons/A	2.34	2.70	3.01	3.48	3.94	L
N Yield, lbs/A DM	79.8	104.8	126.1	166.7	231.9	LQ
<u>Mt. Pleasant, NY</u>						
Hay Yield, tons/A	0.68	1.32	1.53	2.46	3.21	LQ
N Yield, lbs/A DM	20.1	45.1	56.3	101.7	161.8	LQ
<u>Grass Species</u>						
	<u>Reed canarygrass</u>	<u>Timothy</u>	<u>Significance</u>			
<u>Aurora, NY</u>						
Hay Yield, tons/A	1.99 ³	2.24	.03			
N Yield, lbs/A DM	104.1	92.6	.02			
<u>Ithaca, NY</u>						
Hay Yield, tons/A	3.21	2.98	NS			
N Yield, lbs/A DM	158.0	125.7	.04			
<u>Mt. Pleasant, NY</u>						
Hay Yield, tons/A	1.74	1.94	NS			
N Yield, lbs/A DM	79.7	74.3	NS			

1 Tons of hay at 12% moisture.

2 n = 16; means of 4 field replicates, 2 species and 2 cutting managements.

3 n = 40; means of 4 field replicates, 5 N fertility levels and 2 cutting managements.

Table A8. Reed canarygrass yield of dry matter and N, as influenced by cutting management, N fertilization, and manure application¹, 1995.

	Cutting Management			
	Early		Late	
	Hay Yield ² tons/A	N Yield lbs/A DM	Hay Yield tons/A	N Yield lbs/A DM
Aurora				
Manure ³	1.15 ⁴	49.2	1.31	49.1
Manure + N ⁵	3.09	208.0	3.60	215.3
Ithaca				
Manure	2.90	133.2	3.79	156.5
Manure + N	3.89	274.3	5.15	306.6

1 Manure applied to Aurora late cutting management plots contained 4 lbs of organic N per ton of manure. All other treatments with manure contained 5 lbs of organic N per ton of manure.

2 Tons of hay at 12% moisture.

3 Manure split applied, 20 tons in the spring and 20 tons after 1st harvest.

4 Means of 4 replicates.

5 Manure split applied, 20 tons in the spring and 20 tons after 1st harvest; and 480 lbs N/A applied.

Table A9. Neutral detergent fiber (NDF) and crude protein (CP), % of dry matter, as influenced by grass species, N fertilization and cutting management, Mt. Pleasant, 1994.

N Fertilization (lbs of N/A)	Cutting Management						
	Early				Late		
	Cut 1	Cut 2	Cut 3	Cut 4	Cut 1	Cut 2	Cut 3
<u>NDF</u>							
Reed canarygrass							
0	57.5 ¹	54.4	61.6	50.8	64.0	60.6	52.3
60	58.3	52.0	61.5	51.1	67.2	60.3	52.3
120	57.9	53.9	60.4	50.1	64.9	63.0	52.4
240	57.1	48.2	60.4	52.1	65.9	62.0	55.1
480	52.4	46.1	59.0	51.9	61.8	56.9	55.0
Timothy							
0	53.0	58.7	55.9	52.5	58.8	54.4	52.5
60	58.1	51.9	57.2	51.8	66.7	54.0	53.2
120	59.5	49.2	58.8	51.8	66.3	56.3	53.0
240	55.9	47.2	63.2	55.3	61.7	59.4	56.2
480	52.5	48.4	61.4	55.7	56.5	59.9	56.3
<u>CP</u>							
Reed canarygrass							
0	13.22	15.88	14.23	11.08	9.31	12.72	10.16
60	17.91	16.72	13.98	12.77	11.69	12.85	11.87
120	18.27	18.94	14.42	13.84	13.59	13.26	13.32
240	19.81	25.11	18.20	12.60	14.40	14.91	11.00
480	25.91	29.03	22.63	18.01	18.87	20.64	15.24
Timothy							
0	9.54	10.32	12.59	11.39	7.40	11.81	10.79
60	15.27	13.54	10.55	11.47	9.86	11.84	10.19
120	15.90	19.12	9.59	10.32	11.12	12.15	9.74
240	19.54	22.48	12.14	11.22	12.88	13.76	11.89
480	22.49	23.31	14.87	15.03	19.52	16.84	12.99

¹ means of 4 field replicates.

Table A10. Potassium (K), % of dry matter, as influenced by grass species, N fertilization and cutting management, Mt. Pleasant, 1994.

N Fertilization (lbs of N/A)	Cutting Management						
	Early				Late		
	<u>Cut 1</u>	<u>Cut 2</u>	<u>Cut 3</u>	<u>Cut 4</u>	<u>Cut 1</u>	<u>Cut 2</u>	<u>Cut 3</u>
Reed canarygrass							
0	3.61 ¹	3.04	3.12	2.62	2.85	3.21	2.20
60	4.15	3.26	3.05	2.53	3.33	3.23	2.21
120	4.26	3.49	3.39	2.45	3.23	3.23	2.36
240	4.21	3.87	3.45	2.85	3.32	3.36	2.80
480	4.28	3.54	3.15	2.76	3.60	2.92	2.60
Timothy							
0	2.49	2.27	2.53	2.04	2.07	2.56	1.84
60	3.48	2.71	2.48	2.13	3.16	2.62	1.85
120	3.60	3.61	2.55	2.01	3.27	2.88	1.94
240	3.79	3.44	2.79	2.52	3.27	2.96	2.50
480	4.08	3.34	3.04	3.12	3.77	3.07	2.87

¹ means of 4 field replicates.

Table A11. Reed canarygrass neutral detergent fiber (NDF), % of dry matter, as influenced by N fertilization and harvest management, 1995.

N Fertilization (lbs of N/A)	Cutting Management						
	Early				Late		
	Cut 1	Cut 2	Cut 3	Cut 4	Cut 1	Cut 2	Cut 3
<u>Aurora</u>							
0	53.5 ¹	61.2	58.5	54.6	60.0	60.8	53.9
60	51.5	57.7	58.9	51.3	60.7	59.3	51.8
120	51.9	53.7	57.4	50.5	60.2	58.8	51.5
240	50.3	52.6	55.5	48.4	60.3	58.4	48.1
480	48.6	51.9	51.7	48.3	56.4	54.9	48.8
<u>Ithaca</u>							
0	55.6	60.7	58.6	56.4	66.8	60.2	58.6
60	56.4	58.4	58.0	57.3	66.4	58.7	57.9
120	55.1	59.0	57.3	57.2	65.2	59.7	57.9
240	52.7	56.9	55.0	56.1	62.7	59.2	57.7
480	50.6	53.0	50.2	52.9	58.1	56.2	56.3
<u>Mt. Pleasant</u>							
0	57.9 ¹	58.2	59.8	53.7	60.2	60.8	56.6
60	58.4	56.3	60.0	54.1	64.6	60.9	56.9
120	57.6	56.0	59.7	54.7	63.8	61.8	55.7
240	58.7	54.5	59.4	52.8	65.4	59.6	53.2
480	56.6	54.2	54.8	46.3	64.4	58.4	50.5

¹ means of 4 field replicates.

Table A12. Timothy neutral detergent fiber (NDF), % of dry matter, as influenced by N fertilization and harvest management, 1995.

N Fertilization (lbs of N/A)	Cutting Management						
	Early				Late		
	Cut 1	Cut 2	Cut 3	Cut 4	Cut 1	Cut 2	Cut 3
<u>Aurora</u>							
0	55.0 ¹	64.7	54.9	53.1	66.5	57.8	52.2
60	56.2	59.6	55.2	51.7	65.3	57.1	51.4
120	57.3	60.0	55.0	52.7	64.3	57.0	50.9
240	55.2	56.0	55.6	52.0	62.3	57.0	50.7
480	52.1	55.2	55.6	51.9	59.3	55.9	51.3
<u>Ithaca</u>							
0	55.9	60.8	57.8	55.0	66.4	56.8	54.2
60	58.5	59.4	58.3	54.2	67.1	56.7	53.3
120	55.5	62.2	59.0	54.5	63.0	56.4	56.1
240	55.3	57.8	58.4	52.3	58.2	56.6	54.5
480	52.7	58.8	58.4	51.3	58.0	57.6	54.8
<u>Mt. Pleasant</u>							
0	56.7	56.7	54.7	56.3	62.3	58.3	56.6
60	62.7	54.4	54.9	55.8	68.4	57.8	56.9
120	62.2	50.8	54.5	56.9	66.6	57.7	54.4
240	61.6	50.1	52.5	53.7	69.1	57.1	50.6
480	59.4	49.2	54.0	46.2	65.4	57.7	51.4

¹ means of 4 field replicates.

Table A13. Reed canarygrass crude protein (CP), % of dry matter, as influenced by N fertilization and harvest management, 1995.

N Fertilization (lbs of N/A)	Cutting Management						
	Early				Late		
	Cut 1	Cut 2	Cut 3	Cut 4	Cut 1	Cut 2	Cut 3
<u>Aurora</u>							
0	13.02 ¹	12.33	14.47	11.49	11.00	12.79	11.41
60	18.75	15.29	15.14	11.84	14.65	14.81	12.06
120	20.45	19.78	17.38	12.72	15.70	17.07	12.27
240	22.90	21.93	22.08	13.80	18.46	16.54	13.37
480	25.01	22.98	26.41	20.42	22.62	23.77	14.87
<u>Ithaca</u>							
0	14.73	14.12	16.09	13.58	12.08	13.28	16.82
60	17.30	14.88	14.38	17.77	13.99	14.44	13.50
120	18.54	16.75	15.51	15.83	14.51	12.89	13.62
240	20.42	19.99	18.91	17.60	16.05	14.63	13.96
480	25.48	26.28	24.37	19.10	21.09	21.55	16.39
<u>Mt. Pleasant</u>							
0	11.50	13.78	14.34	16.15	9.90	10.50	12.94
60	15.11	15.61	14.09	15.85	12.25	12.26	13.15
120	16.64	16.37	14.54	15.92	13.03	12.39	13.22
240	19.48	14.09	17.53	17.46	15.66	11.42	14.45
480	23.50	17.11	20.13	22.32	19.50	12.53	17.09

¹ means of 4 field replicates.

Table A14. Timothy crude protein (CP), % of dry matter, as influenced by grass N fertilization and harvest management, 1995.

N Fertilization (lbs of N/A)	Cutting Management						
	Early				Late		
	Cut 1	Cut 2	Cut 3	Cut 4	Cut 1	Cut 2	Cut 3
<u>Aurora</u>							
0	10.32 ¹	8.18	15.32	9.71	8.20	13.91	10.26
60	15.38	10.99	17.10	11.60	11.12	16.38	9.84
120	15.65	11.20	20.28	9.62	12.01	16.03	9.76
240	17.57	13.43	24.00	11.98	13.82	17.68	10.74
480	21.21	14.26	24.27	15.67	17.09	23.42	16.52
<u>Ithaca</u>							
0	11.62	11.21	12.26	12.96	9.20	11.06	11.39
60	15.57	12.08	12.06	10.43	11.38	11.50	10.10
120	16.86	11.51	13.15	11.84	14.11	13.83	14.06
240	19.61	17.00	15.89	11.51	15.83	13.97	12.47
480	22.85	18.28	15.87	16.40	19.61	15.99	14.83
<u>Mt. Pleasant</u>							
0	9.17	12.59	12.03	11.82	7.58	10.18	10.76
60	13.03	16.26	11.89	13.23	9.34	11.79	13.32
120	13.58	13.42	12.09	13.03	10.99	10.89	13.72
240	15.43	12.36	13.06	15.16	12.23	11.47	15.77
480	19.27	16.51	15.13	22.77	15.42	11.67	20.28

¹ means of 4 field replicates.

Table A15. Nitrogen management and harvest management of perennial grasses: Effect of cutting management and N fertilizer applied on nitrate content of forage.¹

	Aurora	Ithaca	Mt.Pleasant
	-----	NO ³ -N	-----
Early cut			
240 lbs. N split-applied	652 ²	694	606
480 lbs. N split-applied	1865	2377	3411
Significance	**	**	**
Late cut			
240 lbs. N split-applied	592	572	528
480 lbs. N split-applied	1223	2516	2697
Significance	**	**	**

¹ Forage nitrate concentrations under 1000 ppm NO³-N are generally considered safe for consumption by ruminants.

² Means of 2 replicates, 2 species, 3 harvest dates (late), or 4 harvest dates (early).

Table A16. Nitrogen management and harvest management of perennial grasses: Effect of cutting management, N fertilizer applied and harvest date on nitrate content of forage.¹

	Aurora	Ithaca	Mt.Pleasant
	----- NO ³ -N -----		
Early cut			
240 lbs. N split-applied			
Harvest date 1	469 ²	443	418
Harvest date 2	694	757	571
Harvest date 3	769	702	743
Harvest date 4	674	876	694
480 lbs. N split-applied			
Harvest date 1	1974	2475	4251
Harvest date 2	1164	2819	2502
Harvest date 3	2303	2820	3339
Harvest date 4	2021	1395	3552
Late cut			
240 lbs. N split-applied			
Harvest date 1	409	299	232
Harvest date 2	409	852	605
Harvest date 3	900	627	747
480 lbs. N split-applied			
Harvest date 1	1719	2942	3240
Harvest date 2	1054	2107	3178
Harvest date 3	897	2502	1674

¹ Forage nitrate concentrations under 1000 ppm NO³-N are generally considered safe for consumption by ruminants.

² Means of 2 replicates and 2 species.

Table A17. Partial budget for return over all production costs for grass harvested as dry hay, as influenced by grass species, N fertilization, and cutting management.

	Cutting Management					
	Early			Late		
	<u>0</u> ¹	<u>120</u>	<u>240</u>	<u>0</u>	<u>120</u>	<u>240</u>
<u>Reed canarygrass</u>	----- \$/A -----					
1994						
No manure ²	-135	-15	76	-125	-1	60
Manure ³	-135	11	102	-125	27	86
1995						
No manure	-172	-152	-100	-157	-123	-76
Manure	-172	-126	-74	-157	-94	-50
<u>Timothy</u>						
1994						
No manure	-137	-18	78	-124	-31	46
Manure	-137	8	104	-124	-3	72
1995						
No manure	-179	-149	-94	-165	-106	-42
Manure	-179	-123	-68	-165	-78	-16

¹ 0, 120, and 240 lb N/A applied.

² Assumes no manure application to grass.

³ Assumes 40 tons/A of manure split-applied, resulting in 88 lb N/A available to the growing crop and crediting fertilizer costs for both 88 lb N/A and all P and K fertilizer costs. No manure is applied to the 0 N/A treatments.

Table A18. Feeding trial comparing alfalfa hay with 2 maturities of orchardgrass hay fed to mid-lactation dairy cows in balanced rations¹.

	Ration Content lbs DM				Milk produced ⁵ lbs/day
	Forage	Corn ²	SBM ³	Minerals ⁴	
<u>Alfalfa</u> NDF = 43.3% CP = 20.9%	28.5	19.9	0.75	0.75	64
<u>Orchardgrass</u> NDF = 54.3% CP = 15.7%	22.8	20.4	4.90	1.25	66
<u>Orchardgrass</u> NDF = 66.5% CP = 9.9%	18.5	22.5	7.75	1.35	70

¹ Latin square design, 4 X 4.

² Ground corn grain.

³ Soybean meal.

⁴ Limestone, salt, calcium sulfate, and phosphorus supplement.

⁵ All cows were producing approximately 90 lbs milk/day at the start of the 3 month experiment.

Table B1.

Index of Prices Paid by NY farmers*				
(1977 = 100)				
Item	1992	1995	Chg	
Fuel & energy	221	196	88.7%	
Fertilizer	139	124	89.2%	
Seed	186	168	90.3%	
Machinery	237	227	95.8%	
Bldg, fencing, supplies	150	131	87.3%	
Farm svcs & rent (other)	171	215	125.7%	
Agricultural chemicals	159	151	95.0%	
Interest rates	101	93	92.1%	
Farm wages	246	246	100.0%	
Property taxes	194	161	83.0%	

* Update as needed from most recent NY Economic Handbook, Agriculture Situation and Outlook, Dairy Section, published in December each year
Dept. of Agricultural Economics, Cornell University, Ithaca, NY 14853

CROP ANALYSIS

Table B2.

1992 BASELINE COSTS PER ACRE *
GRASS HAY CROPS

Factor	Mgmt level: Hay Crop:	0		Early		Late	
		0	120	240	0	120	240
		\$	\$	\$	\$	\$	\$
1992 Baseline costs per acre for:							
Hay Crop - Growing Equipment - Fuel, oil		2.65	2.65	2.65	2.63	2.63	2.63
- Repair		2.30	2.30	2.30	2.10	2.10	2.10
- Other growing costs (overhead)		2.00	2.00	2.00	2.00	2.00	2.00
Dry Hay - Harvesting Equipment - Fuel, oil		13.01	13.01	13.01	13.01	13.01	13.01
- Repairs		14.56	14.56	14.56	14.56	14.56	14.56
- Supplies (twine)		9.25	9.25	9.25	5.75	5.75	5.75
- Interest		4.85	4.85	4.85	3.94	3.94	3.94
- Labor		52.54	52.54	52.54	51.26	51.26	51.26
Hay Crop Silage - Hvstg Equip - Fuel, oil		23.72	23.72	23.72	23.72	23.72	23.72
- Repairs		26.70	26.70	26.70	26.72	26.72	26.72
- Interest		5.53	5.53	5.53	4.80	4.80	4.80
- Labor		50.00	50.00	50.00	48.72	48.72	48.72
Hay Crop - Other harvesting costs (overhead)		3.00	3.00	3.00	3.00	3.00	3.00
Fixed Costs - Equipment (depr, int, ins,hsg)		80.00	80.00	80.00	80.00	80.00	80.00
- Land (avg rent/ac)		35.00	35.00	35.00	35.00	35.00	35.00

Baseline costs for equipment, overhead, interest and labor are from budgets prepared for a 100 cow dairy farm with field crop equipment complement adequate for 300 crop acres harvested as 50 acres of dry hay, 100 acres of hay crop silage, 100 acres of corn silage and 50 acres of high moisture ear corn.

* Used as the basis for updating expenses for years after 1992. These expenses are indexed according to changes in the Index of prices paid by NY farmers as published annually in the Dairy section of the "New York Economic Handbook", Department of Agricultural Economics, Cornell University, Ithaca, NY 14853-7801. These expenses are generally applicable to dairy farms somewhat larger than average in New York. Data for a specific application should be used if available.

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CROP ANALYSIS

Table B3. BUDGET ASSUMPTIONS FOR REED CANARYGRASS HAY CROP, 1994, MT. PLEASANT, NY.

Factor	Mgmt level:			Late			
	Lb N/ac	0	Early 120	240	0	120	240
Stand life, yr (excluding the seeding year)		6	6	6	6	6	6
Cuts per year, number		4.0	4.0	4.0	3.0	3.0	3.0
Yield, tns/ac: Established		1.0	2.4	3.4	1.2	3.0	4.0
Seeding year		0.52	1.21	1.69	0.62	1.48	1.98
Average*		0.96	2.26	3.13	1.15	2.75	3.67
Feed value per ton							
Dry Hay Equivalent, \$ (estimated)		89.82	104.33	113.39	78.50	89.27	90.79
	(Cost /unit)						
Seed, lb/ac or cost/ac	alfalfa	3.15					
(w/o companion crop)	Reed Canary	4	10	10	10	10	10
Lime, tn/ac (seeding year or annual)	28.91	0	0	0	0	0	0
Fertilizer							
Seeding year or plante	N lb/ac	0.24	50	50	50	50	50
	P lb/ac	0.23	10	10	10	10	10
	K lb/ac	0.13	20	20	20	20	20
Top or side dressing	N lb/ac	0	120	240	0	120	240
(maint)	P lb/ac	10	10	10	10	20	10
	K lb/ac	20	20	20	20	20	20

Note: All budgets are for crops produced on the same land resource and with the same equipment complement.

* Calculated average of seeding year and established yields over stand life for hay crops.

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CROP ANALYSIS

Table B4. Economic Comparison of Reed Canarygrass Hay Crops Harvested as Dry Hay as Influenced by N Fertilization and Cutting Management Level, Mt. Pleasant, NY, 1994.

Factor	Mgmt level:			Late			
	Hay Crop:	0	120	240	0	120	240
Stand life, yr (excluding the seeding yr)		6	6	6	6	6	6
Cuts per year, number		4	4	4	3	3	3
Yield, tons/acre*		0.96	2.26	3.13	1.15	2.75	3.67
Feed value per ton of dry HE, \$		89.82	104.33	113.39	78.50	89.27	90.79
Returns		\$	\$	\$	\$	\$	\$
Crop value per acre		86.16	235.32	355.04	90.31	245.78	333.51
Variable Growing Costs							
Seed (includes prorated seeding costs)		5.71	5.71	5.71	5.71	5.71	5.71
Fertility							
- Fertilizer		7.31	36.11	64.91	7.31	38.41	64.91
Pesticides - Lime		0.00	0.00	0.00	0.00	0.00	0.00
Equipment		2.35	2.35	2.35	2.33	2.33	2.33
- Fuel, oil		2.20	2.20	2.20	2.01	2.01	2.01
Other - Repair		2.51	2.51	2.51	2.51	2.51	2.51
Tot. Var. Growing Cos (overhead, scouting, soil tests)		20.10	48.90	77.70	19.89	50.99	77.49
Variable Harvesting Costs							
Equipment		11.54	11.54	11.54	11.54	11.54	11.54
- Fuel, oil		13.95	13.95	13.95	13.95	13.95	13.95
Twine - Repair		8.08	8.08	8.08	5.02	5.02	5.02
Other		3.77	3.77	3.77	3.77	3.77	3.77
Total Variable Harvesting Costs		37.33	37.33	37.33	34.28	34.28	34.28
Interest - Operating		4.47	4.47	4.47	3.63	3.63	3.63
Labor (seeding & harvest)		52.54	52.54	52.54	51.26	51.26	51.26
Total Variable Production Costs		114.44	143.24	172.04	109.05	140.15	166.65
Net Returns over Variable Costs		-28.28	92.08	183.00	-18.74	105.63	166.86
less estimated Fixed Costs for:							
Equipment (depreciation, interest, insurance, housing)		75.14	75.14	75.14	75.14	75.14	75.14
Land (average rent/ac)		31.59	31.59	31.59	31.59	31.59	31.59
Returns over all Costs**		-135.02	-14.66	76.27	-125.47	-1.11	60.12

* Calculated average of seeding year and established yields over stand life.

** Production costs only - does not include costs to store or sell the crop

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CROP ANALYSIS

Table B5. Economic Comparison of Reed Canarygrass Hay Crops Harvested as Hay Crop Silage as Influenced by N Fertilization and Cutting Management Level, Mt. Pleasant, 1994.

Factor	Mgmt level: Hay Crop:	Early			Late		
		0	120	240	0	120	240
Stand life, yr (excluding the seeding year)		6	6	6	6	6	6
Cuts per year, number		4	4	4	3	3	3
Yield, in dry Hay Equiv, tons/acre*		0.96	2.26	3.13	1.15	2.75	3.67
Feed value per ton of dry Hay Eq, \$		89.82	104.33	113.39	78.50	89.27	90.79
		\$	\$	\$	\$	\$	\$
Returns							
Crop value per acre		86.16	235.32	355.04	90.31	245.78	333.51
Variable Growing Costs							
Seed (includes prorated seeding costs)		5.71	5.71	5.71	5.71	5.71	5.71
Fertility							
- Fertilizer		7.31	36.11	64.91	7.31	38.41	64.91
Pesticides - Lime		0.00	0.00	0.00	0.00	0.00	0.00
Equipment		2.35	2.35	2.35	2.33	2.33	2.33
- Fuel, oil		2.20	2.20	2.20	2.01	2.01	2.01
Other - Repair		2.51	2.51	2.51	2.51	2.51	2.51
Tot. Var. Growing Cost (overhead, scouting, soil tests)		20.10	48.90	77.70	19.89	50.99	77.49
Variable Harvesting Costs							
Equipment		21.04	21.04	21.04	21.04	21.04	21.04
- Fuel, oil		25.57	25.57	25.57	25.59	25.59	25.59
Other - Repair		3.77	3.77	3.77	3.77	3.77	3.77
Total Variable Harvesting Costs		50.38	50.38	50.38	50.40	50.40	50.40
Interest - Operating		5.09	5.09	5.09	4.42	4.42	4.42
Labor		50.00	50.00	50.00	48.72	48.72	48.72
Total Variable Production Costs		125.57	154.37	183.17	123.43	154.53	181.03
Net Returns over Variable Costs		-39.41	80.95	171.87	-33.11	91.25	152.48
less estimated Fixed Costs:							
Equipment (depreciation, interest, insurance, housing)		75.14	75.14	75.14	75.14	75.14	75.14
Land (average rent/ac)		31.59	31.59	31.59	31.59	31.59	31.59
Returns over all Costs**		-146.15	-25.79	65.13	-139.85	-15.48	45.75

* Calculated average of seeding year and established yields over stand life.

** Production costs only - does not include costs to store or sell the crop

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CROP ANALYSIS

Table B6. BUDGET ASSUMPTIONS FOR REED CANARYGRASS HAY CROP, 1994, MT. PLEASANT, NY, WITH 88 LB OF N ADDED AS MANURE.

Factor	Mgmt level:		Early			Late		
	Lb	N/ac	0	120	240	0	120	240
Stand life, yr (excluding the seeding year)			6	6	6	6	6	6
Cuts per year, number			4.0	4.0	4.0	3.0	3.0	3.0
Yield, tns/ac: Established			1.0	2.4	3.4	1.2	3.0	4.0
Seeding year			0.52	1.21	1.69	0.62	1.48	1.98
Average*			0.96	2.26	3.13	1.15	2.75	3.67
Feed value per ton								
Dry Hay Equivalent, \$ (estimated)			89.82	104.33	113.39	78.50	89.27	90.79
Seed, lb/ac or cost/ac		(Cost /unit)						
alfalfa		3.15						
(w/o companion crop) Reed Canary		4	10	10	10	10	10	10
Lime, tn/ac (seeding year or annual)	28.91		0	0	0	0	0	0
Fertilizer								
Seeding year or plante	N lb/ac	0.24	50	50	50	50	50	50
	P lb/ac	0.23	10	10	10	10	10	10
	K lb/ac	0.13	20	20	20	20	20	20
Top or side dressing (maint)	N lb/ac		0	32	152	0	32	152
	P lb/ac		10			10		
	K lb/ac	0.13	20			20		

Note: All budgets are for crops produced on the same land resource and with the same equipment complement.

* Calculated average of seeding year and established yields over stand life for hay crops.

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CROP ANALYSIS

Table B7. Economic Comparison of Reed Canarygrass Hay Crops Harvested as Dry Hay as Influenced by N Fertilization and Cutting Management Level, Mt. Pleasant, NY, 1994.*

Factor	Mgmt level:		Early			Late		
	Hay Crop:		0	120	240	0	120	240
Stand life, yr (excluding the seeding yr)			6	6	6	6	6	6
Cuts per year, number			4	4	4	3	3	3
Yield, tons/acre**			0.96	2.26	3.13	1.15	2.75	3.67
Feed value per ton of dry HE, \$			89.82	104.33	113.39	78.50	89.27	90.79
Returns			\$	\$	\$	\$	\$	\$
Crop value per acre			86.16	235.32	355.04	90.31	245.78	333.51
Variable Growing Costs								
Seed (includes prorated seeding costs)			5.71	5.71	5.71	5.71	5.71	5.71
Fertility								
- Fertilizer			7.31	10.09	38.89	7.31	10.09	38.89
Pesticides - Lime			0.00	0.00	0.00	0.00	0.00	0.00
Equipment			2.35	2.35	2.35	2.33	2.33	2.33
- Fuel, oil			2.20	2.20	2.20	2.01	2.01	2.01
Other - Repair			2.51	2.51	2.51	2.51	2.51	2.51
Tot. Var. Growing Cos (overhead, scouting, soil tests)			20.10	22.88	51.68	19.89	22.67	51.47
Variable Harvesting Costs								
Equipment			11.54	11.54	11.54	11.54	11.54	11.54
- Fuel, oil			13.95	13.95	13.95	13.95	13.95	13.95
Twine - Repair			8.08	8.08	8.08	5.02	5.02	5.02
Other			3.77	3.77	3.77	3.77	3.77	3.77
Total Variable Harvesting Costs			37.33	37.33	37.33	34.28	34.28	34.28
Interest - Operating			4.47	4.47	4.47	3.63	3.63	3.63
Labor			52.54	52.54	52.54	51.26	51.26	51.26
(seeding & harvest)								
Total Variable Production Costs			114.44	117.22	146.02	109.05	111.83	140.63
Net Returns over Variable Costs			-28.28	118.10	209.02	-18.74	133.95	192.88
less estimated Fixed Costs for:								
Equipment			75.14	75.14	75.14	75.14	75.14	75.14
(depreciation, interest,								
Land insurance, housing)			31.59	31.59	31.59	31.59	31.59	31.59
(average rent/ac)								
Returns over all Costs***			-135.02	11.36	102.29	-125.47	27.21	86.14

* Assumes 88 lb N/yr are added as manure.

** Calculated average of seeding year and established yields over stand life.

*** Production costs only - does not include costs to store or sell the crop

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Table B8. Economic Comparison of Reed Canarygrass Hay Crops Harvested as Hay Crop Silage as Influenced by N Fertilization and Cutting Management Level, Mt. Pleasant, 1994.*

Factor	Mgmt level: Hay Crop:	Early			Late		
		0	120	240	0	120	240
Stand life, yr (excluding the seeding year)		6	6	6	6	6	6
Cuts per year, number		4	4	4	3	3	3
Yield, in dry Hay Equiv, tons/acre**		0.96	2.26	3.13	1.15	2.75	3.67
Feed value per ton of dry Hay Eq, \$		89.82	104.33	113.39	78.50	89.27	90.79
		\$	\$	\$	\$	\$	\$
Returns							
Crop value per acre		86.16	235.32	355.04	90.31	245.78	333.51
Variable Growing Costs							
Seed (includes prorated seeding costs)		5.71	5.71	5.71	5.71	5.71	5.71
Fertility							
- Fertilizer		7.31	10.09	38.89	7.31	10.09	38.89
Pesticides - Lime		0.00	0.00	0.00	0.00	0.00	0.00
Equipment		2.35	2.35	2.35	2.33	2.33	2.33
- Fuel, oil		2.20	2.20	2.20	2.01	2.01	2.01
Other - Repair		2.51	2.51	2.51	2.51	2.51	2.51
Tot. Var. Growing Cost (overhead, scouting, soil tests)		20.10	22.88	51.68	19.89	22.67	51.47
Variable Harvesting Costs							
Equipment		21.04	21.04	21.04	21.04	21.04	21.04
- Fuel, oil		25.57	25.57	25.57	25.59	25.59	25.59
Other - Repair		3.77	3.77	3.77	3.77	3.77	3.77
Total Variable Harvesting Costs		50.38	50.38	50.38	50.40	50.40	50.40
Interest - Operating		5.09	5.09	5.09	4.42	4.42	4.42
Labor		50.00	50.00	50.00	48.72	48.72	48.72
Total Variable Production Costs		125.57	128.35	157.15	123.43	126.21	155.01
Net Returns over Variable Costs		-39.41	106.97	197.89	-33.11	119.57	178.50
less estimated Fixed Costs:							
Equipment		75.14	75.14	75.14	75.14	75.14	75.14
(depreciation, interest,							
Land insurance, housing)		31.59	31.59	31.59	31.59	31.59	31.59
(average rent/ac)							
Returns over all Costs***		-146.15	0.23	91.15	-139.85	12.84	71.77

* Assumes 88 lb N/yr are added as manure.

** Calculated average of seeding year and established yields over stand life.

*** Production costs only - does not include costs to store or sell the crop

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Table B9. BUDGET ASSUMPTIONS FOR REED CANARYGRASS HAY CROP, 1995, MT. PLEASANT, NY.

Factor	Mgmt level:		Early			Late		
	Lb	N/ac	0	120	240	0	120	240
Stand life, yr (excluding the seeding year)			6	6	6	6	6	6
Cuts per year, number			4.0	4.0	4.0	3.0	3.0	3.0
Yield, tns/ac: Established			0.6	1.1	1.8	0.8	1.7	2.3
Seeding year			0.30	0.53	0.91	0.39	0.83	1.14
Average*			0.55	0.98	1.69	0.72	1.54	2.12
Feed value per ton								
Dry Hay Equivalent, \$ (estimated)			89.09	99.18	105.66	80.89	80.63	93.42
		(Cost /unit)						
Seed, lb/ac or cost/ac	alfalfa	3.15						
(w/o companion crop)	Reed Canary	4	10	10	10	10	10	10
Lime, tn/ac (seeding year or annual)		28.91	0	0	0	0	0	0
Fertilizer								
Seeding year or plante	N lb/ac	0.24	50	50	50	50	50	50
	P lb/ac	0.23	10	10	10	10	10	10
	K lb/ac	0.13	20	20	20	20	20	20
Top or side dressing (maint)	N lb/ac		0	120	240	0	120	240
	P lb/ac		10	10	10	10	20	10
	K lb/ac		20	20	20	20	20	20

Note: All budgets are for crops produced on the same land resource and with the same equipment complement.

* Calculated average of seeding year and established yields over stand life for hay crops.

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Table B10. Economic Comparison of Reed Canarygrass Hay Crops Harvested as Dry Hay as Influenced by N Fertilization and Cutting Management Level, Mt. Pleasant, NY, 1995.

Factor	Mgmt level:			Late			
	Hay Crop:	0	120	240	0	120	240
Stand life, yr (excluding the seeding yr)		6	6	6	6	6	6
Cuts per year, number		4	4	4	3	3	3
Yield, tons/acre*		0.55	0.98	1.69	0.72	1.54	2.12
Feed value per ton of dry HE, \$		89.09	99.18	105.66	80.89	80.63	93.42
Returns		\$	\$	\$	\$	\$	\$
Crop value per acre		48.81	97.62	178.57	58.59	124.29	197.78
Variable Growing Costs							
Seed	(includes prorated seeding costs)	5.71	5.71	5.71	5.71	5.71	5.71
Fertility							
- Fertilizer		7.31	36.11	64.91	7.31	38.41	64.91
Pesticides - Lime		0.00	0.00	0.00	0.00	0.00	0.00
Equipment		2.35	2.35	2.35	2.33	2.33	2.33
- Fuel, oil		2.20	2.20	2.20	2.01	2.01	2.01
Other - Repair		2.51	2.51	2.51	2.51	2.51	2.51
Tot. Var. Growing Cos (overhead, scouting, soil tests)		20.10	48.90	77.70	19.89	50.99	77.49
Variable Harvesting Costs							
Equipment		11.54	11.54	11.54	11.54	11.54	11.54
- Fuel, oil		13.95	13.95	13.95	13.95	13.95	13.95
Twine - Repair		8.08	8.08	8.08	5.02	5.02	5.02
Other		3.77	3.77	3.77	3.77	3.77	3.77
Total Variable Harvesting Costs		37.33	37.33	37.33	34.28	34.28	34.28
Interest - Operating		4.47	4.47	4.47	3.63	3.63	3.63
Labor		52.54	52.54	52.54	51.26	51.26	51.26
(seeding & harvest)							
Total Variable Production Costs		114.44	143.24	172.04	109.05	140.15	166.65
Net Returns over Variable Costs		-65.63	-45.61	6.53	-50.47	-15.87	31.13
less estimated Fixed Costs for:							
Equipment		75.14	75.14	75.14	75.14	75.14	75.14
(depreciation, interest,							
Land insurance, housing)		31.59	31.59	31.59	31.59	31.59	31.59
(average rent/ac)							
Returns over all Costs**		-172.36	-152.35	-100.21	-157.20	-122.60	-75.60

* Calculated average of seeding year and established yields over stand life.

** Production costs only - does not include costs to store or sell the crop

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CROP ANALYSIS

Table B11. Economic Comparison of Reed Canarygrass Hay Crops Harvested as Hay Crop Silage as Influenced by N Fertilization and Cutting Management Level, Mt. Pleasant, 1995.

Factor	Mgmt level: Hay Crop:	Early			Late		
		0	120	240	0	120	240
Stand life, yr (excluding the seeding year)		6	6	6	6	6	6
Cuts per year, number		4	4	4	3	3	3
Yield, in dry Hay Equiv, tons/acre*		0.55	0.98	1.69	0.72	1.54	2.12
Feed value per ton of dry Hay Eq, \$		89.09	99.18	105.66	80.89	80.63	93.42
		\$	\$	\$	\$	\$	\$
Returns							
Crop value per acre		48.81	97.62	178.57	58.59	124.29	197.78
Variable Growing Costs							
Seed (includes prorated seeding costs)		5.71	5.71	5.71	5.71	5.71	5.71
Fertility							
- Fertilizer		7.31	36.11	64.91	7.31	38.41	64.91
Pesticides - Lime		0.00	0.00	0.00	0.00	0.00	0.00
Equipment		2.35	2.35	2.35	2.33	2.33	2.33
- Fuel, oil		2.20	2.20	2.20	2.01	2.01	2.01
Other - Repair		2.51	2.51	2.51	2.51	2.51	2.51
Tot. Var. Growing Cost (overhead, scouting, soil tests)		20.10	48.90	77.70	19.89	50.99	77.49
Variable Harvesting Costs							
Equipment		21.04	21.04	21.04	21.04	21.04	21.04
- Fuel, oil		25.57	25.57	25.57	25.59	25.59	25.59
Other - Repair		3.77	3.77	3.77	3.77	3.77	3.77
Total Variable Harvesting Costs		50.38	50.38	50.38	50.40	50.40	50.40
Interest - Operating		5.09	5.09	5.09	4.42	4.42	4.42
Labor		50.00	50.00	50.00	48.72	48.72	48.72
Total Variable Production Costs		125.57	154.37	183.17	123.43	154.53	181.03
Net Returns over Variable Costs		-76.76	-56.75	-4.61	-64.84	-30.24	16.76
less estimated Fixed Costs:							
Equipment		75.14	75.14	75.14	75.14	75.14	75.14
(depreciation, interest,							
Land (insurance, housing)		31.59	31.59	31.59	31.59	31.59	31.59
(average rent/ac)							
Returns over all Costs**		-183.50	-163.48	-111.34	-171.58	-136.98	-89.98

* Calculated average of seeding year and established yields over stand life.

** Production costs only - does not include costs to store or sell the crop

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CROP ANALYSIS

Table B12. BUDGET ASSUMPTIONS FOR REED CANARYGRASS HAY CROP, 1995, MT. PLEASANT, NY, WITH 88 LB OF N ADDED AS MANURE.

Factor	Mgmt level:		Early			Late		
	Lb N/ac		0	120	240	0	120	240
Stand life, yr (excluding the seeding year)			6	6	6	6	6	6
Cuts per year, number			4.0	4.0	4.0	3.0	3.0	3.0
Yield, tns/ac: Established			0.6	1.1	1.8	0.8	1.7	2.3
Seeding year			0.30	0.53	0.91	0.39	0.83	1.14
Average*			0.55	0.98	1.69	0.72	1.54	2.12
Feed value per ton								
Dry Hay Equivalent, \$ (estimated)			89.09	99.18	105.66	80.89	80.63	93.42
Seed, lb/ac or cost/ac		(Cost /unit)						
(w/o companion crop)	alfalfa	3.15						
	Reed Canary	4	10	10	10	10	10	10
Lime, tn/ac (seeding year or annual)		28.91	0	0	0	0	0	0
Fertilizer								
Seeding year or plante	N lb/ac	0.24	50	50	50	50	50	50
	P lb/ac	0.23	10	10	10	10	10	10
	K lb/ac	0.13	20	20	20	20	20	20
Top or side dressing (maint)	N lb/ac		0	32	152	0	32	152
	P lb/ac		10			10		
	K lb/ac	0.13	20			20		

Note: All budgets are for crops produced on the same land resource and with the same equipment complement.

* Calculated average of seeding year and established yields over stand life for hay crops.

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CROP ANALYSIS

Table B13. Economic Comparison of Reed Canarygrass Hay Crops Harvested as Dry Hay, as Influenced by N Fertilization and Cutting Management Level, Mt. Pleasant, NY, 1995.*

Factor	Mgmt level:			Late			
	Hay Crop:	0	120	240	0	120	240
Stand life, yr (excluding the seeding yr)		6	6	6	6	6	6
Cuts per year, number		4	4	4	3	3	3
Yield, tons/acre**		0.55	0.98	1.69	0.72	1.54	2.12
Feed value per ton of dry HE, \$		89.09	99.18	105.66	80.89	80.63	93.42
Returns		\$	\$	\$	\$	\$	\$
Crop value per acre		48.81	97.62	178.57	58.59	124.29	197.78
Variable Growing Costs							
Seed (includes prorated seeding costs)		5.71	5.71	5.71	5.71	5.71	5.71
Fertility							
- Fertilizer		7.31	10.09	38.89	7.31	10.09	38.89
Pesticides - Lime		0.00	0.00	0.00	0.00	0.00	0.00
Equipment		2.35	2.35	2.35	2.33	2.33	2.33
- Fuel, oil		2.20	2.20	2.20	2.01	2.01	2.01
Other - Repair		2.51	2.51	2.51	2.51	2.51	2.51
Tot. Var. Growing Cos (overhead, scouting, soil tests)		20.10	22.88	51.68	19.89	22.67	51.47
Variable Harvesting Costs							
Equipment		11.54	11.54	11.54	11.54	11.54	11.54
- Fuel, oil		13.95	13.95	13.95	13.95	13.95	13.95
Twine - Repair		8.08	8.08	8.08	5.02	5.02	5.02
Other		3.77	3.77	3.77	3.77	3.77	3.77
Total Variable Harvesting Costs		37.33	37.33	37.33	34.28	34.28	34.28
Interest - Operating		4.47	4.47	4.47	3.63	3.63	3.63
Labor (seeding & harvest)		52.54	52.54	52.54	51.26	51.26	51.26
Total Variable Production Costs		114.44	117.22	146.02	109.05	111.83	140.63
Net Returns over Variable Costs		-65.63	-19.59	32.55	-50.47	12.45	57.15
less estimated Fixed Costs for:							
Equipment (depreciation, interest, insurance, housing)		75.14	75.14	75.14	75.14	75.14	75.14
Land (average rent/ac)		31.59	31.59	31.59	31.59	31.59	31.59
Returns over all Costs***		-172.36	-126.33	-74.19	-157.20	-94.28	-49.58

* Assumes 88 lb N/yr are added as manure.

** Calculated average of seeding year and established yields over stand life.

*** Production costs only - does not include costs to store or sell the crop

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CROP ANALYSIS

Table B14. Economic Comparison of Reed Canarygrass Hay Crops Harvested as Hay Crop Silage as Influenced by N Fertilization and Cutting Management Level, Mt. Pleasant, 1995.*

Factor	Mgmt level: Hay Crop:	Early			Late		
		0	120	240	0	120	240
Stand life, yr (excluding the seeding year)		6	6	6	6	6	6
Cuts per year, number		4	4	4	3	3	3
Yield, in dry Hay Equiv, tons/acre**		0.55	0.98	1.69	0.72	1.54	2.12
Feed value per ton of dry Hay Eq, \$		89.09	99.18	105.66	80.89	80.63	93.42
		\$	\$	\$	\$	\$	\$
Returns							
Crop value per acre		48.81	97.62	178.57	58.59	124.29	197.78
Variable Growing Costs							
Seed (includes prorated seeding costs)		5.71	5.71	5.71	5.71	5.71	5.71
Fertility							
- Fertilizer		7.31	10.09	38.89	7.31	10.09	38.89
Pesticides - Lime		0.00	0.00	0.00	0.00	0.00	0.00
Equipment		2.35	2.35	2.35	2.33	2.33	2.33
- Fuel, oil		2.20	2.20	2.20	2.01	2.01	2.01
Other - Repair		2.51	2.51	2.51	2.51	2.51	2.51
Tot. Var. Growing Cost (overhead, scouting, soil tests)		20.10	22.88	51.68	19.89	22.67	51.47
Variable Harvesting Costs							
Equipment		21.04	21.04	21.04	21.04	21.04	21.04
- Fuel, oil		25.57	25.57	25.57	25.59	25.59	25.59
Other - Repair		3.77	3.77	3.77	3.77	3.77	3.77
Total Variable Harvesting Costs		50.38	50.38	50.38	50.40	50.40	50.40
Interest - Operating		5.09	5.09	5.09	4.42	4.42	4.42
Labor		50.00	50.00	50.00	48.72	48.72	48.72
Total Variable Production Costs		125.57	128.35	157.15	123.43	126.21	155.01
Net Returns over Variable Costs		-76.76	-30.73	21.41	-64.84	-1.92	42.78
less estimated Fixed Costs:							
Equipment		75.14	75.14	75.14	75.14	75.14	75.14
(depreciation, interest,							
Land (insurance, housing)		31.59	31.59	31.59	31.59	31.59	31.59
(average rent/ac)							
Returns over all Costs***		-183.50	-137.46	-85.32	-171.58	-108.66	-63.96

* Assumes 88 lb N/yr are added as manure.

** Calculated average of seeding year and established yields over stand life.

*** Production costs only - does not include costs to store or sell the crop

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CROP ANALYSIS

Table B15. BUDGET ASSUMPTIONS FOR TIMOTHY HAY CROP, 1994, MT. PLEASANT, NY.

Factor	Mgmt level:		Early			Late		
	Lb	N/ac	0	120	240	0	120	240
Stand life, yr (excluding the seeding year)			6	6	6	6	6	6
Cuts per year, number			4.0	4.0	4.0	3.0	3.0	3.0
Yield, tns/ac: Established			1.1	2.6	3.9	1.3	2.8	3.9
Seeding year			0.54	1.28	1.93	0.64	1.39	1.94
Average*			1.00	2.38	3.59	1.19	2.59	3.59
Feed value per ton								
Dry Hay Equivalent, \$ (estimated)			79.26	95.35	97.98	72.89	81.60	87.59
		(Cost /unit)						
Seed, lb/ac or cost/ac	alfalfa	3.15						
(w/o companion crop)	Timothy	0.78	8	8	8	8	8	8
Lime, tn/ac (seeding year or annual)		28.91	0	0	0	0	0	0
Fertilizer								
Seeding year or plante	N lb/ac	0.24	50	50	50	50	50	50
	P lb/ac	0.23	10	10	10	10	10	10
	K lb/ac	0.13	20	20	20	20	20	20
Top or side dressing (maint)	N lb/ac		0	120	240	0	120	240
	P lb/ac		10	10	10	10	20	10
	K lb/ac		20	20	20	20	20	20

Note: All budgets are for crops produced on the same land resource and with the same equipment complement.

* Calculated average of seeding year and established yields over stand life for hay crops.

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CROP ANALYSIS

Table B16. Economic Comparison of Timothy Hay Crops Harvested as Dry Hay as Influenced by N Fertilization and Cutting Management Level, Mt. Pleasant, NY, 1994.

Factor	Mgmt level:		Early			Late		
	Hay Crop:		0	120	240	0	120	240
Stand life, yr (excluding the seeding yr)			6	6	6	6	6	6
Cuts per year, number			4	4	4	3	3	3
Yield, tons/acre*			1.00	2.38	3.59	1.19	2.59	3.59
Feed value per ton of dry HE, \$			79.26	95.35	97.98	72.89	81.60	87.59
Returns			\$	\$	\$	\$	\$	\$
Crop value per acre			78.90	226.84	351.83	87.04	211.17	314.84
Variable Growing Costs								
Seed (includes prorated seeding costs)			0.89	0.89	0.89	0.89	0.89	0.89
Fertility								
- Fertilizer			7.31	36.11	64.91	7.31	38.41	64.91
Pesticides - Lime			0.00	0.00	0.00	0.00	0.00	0.00
Equipment			2.35	2.35	2.35	2.33	2.33	2.33
- Fuel, oil			2.20	2.20	2.20	2.01	2.01	2.01
Other - Repair			2.51	2.51	2.51	2.51	2.51	2.51
Tot. Var. Growing Cos (overhead, scouting, soil tests)			15.27	44.07	72.87	15.06	46.16	72.66
Variable Harvesting Costs								
Equipment			11.54	11.54	11.54	11.54	11.54	11.54
- Fuel, oil			13.95	13.95	13.95	13.95	13.95	13.95
Twine - Repair			8.08	8.08	8.08	5.02	5.02	5.02
Other			3.77	3.77	3.77	3.77	3.77	3.77
Total Variable Harvesting Costs			37.33	37.33	37.33	34.28	34.28	34.28
Interest - Operating			4.47	4.47	4.47	3.63	3.63	3.63
Labor (seeding & harvest)			52.54	52.54	52.54	51.26	51.26	51.26
Total Variable Production Costs			109.61	138.41	167.21	104.23	135.33	161.83
Net Returns over Variable Costs			-30.72	88.42	184.61	-17.19	75.85	153.01
less estimated Fixed Costs for:								
Equipment (depreciation, interest, insurance, housing)			75.14	75.14	75.14	75.14	75.14	75.14
Land (average rent/ac)			31.59	31.59	31.59	31.59	31.59	31.59
Returns over all Costs**			-137.45	-18.31	77.88	-123.92	-30.89	46.28

* Calculated average of seeding year and established yields over stand life.

** Production costs only - does not include costs to store or sell the crop

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CROP ANALYSIS

Table B17. Economic Comparison of Timothy Hay Crops Harvested as Hay Crop Silage as Influenced by N Fertilization and Cutting Management Level, Mt. Pleasant, 1994.

Factor	Mgmt level: Hay Crop:	Early			Late		
		0	120	240	0	120	240
Stand life, yr (excluding the seeding year)		6	6	6	6	6	6
Cuts per year, number		4	4	4	3	3	3
Yield, in dry Hay Equiv, tons/acre*		1.00	2.38	3.59	1.19	2.59	3.59
Feed value per ton of dry Hay Eq, \$		79.26	95.35	97.98	72.89	81.60	87.59
		\$	\$	\$	\$	\$	\$
Returns							
Crop value per acre		78.90	226.84	351.83	87.04	211.17	314.84
Variable Growing Costs							
Seed (includes prorated seeding costs)		0.89	0.89	0.89	0.89	0.89	0.89
Fertility							
- Fertilizer		7.31	36.11	64.91	7.31	38.41	64.91
Pesticides - Lime		0.00	0.00	0.00	0.00	0.00	0.00
Equipment		2.35	2.35	2.35	2.33	2.33	2.33
- Fuel, oil		2.20	2.20	2.20	2.01	2.01	2.01
Other - Repair		2.51	2.51	2.51	2.51	2.51	2.51
Tot. Var. Growing Cost (overhead, scouting, soil tests)		15.27	44.07	72.87	15.06	46.16	72.66
Variable Harvesting Costs							
Equipment		21.04	21.04	21.04	21.04	21.04	21.04
- Fuel, oil		25.57	25.57	25.57	25.59	25.59	25.59
Other - Repair		3.77	3.77	3.77	3.77	3.77	3.77
Total Variable Harvesting Costs		50.38	50.38	50.38	50.40	50.40	50.40
Interest - Operating		5.09	5.09	5.09	4.42	4.42	4.42
Labor		50.00	50.00	50.00	48.72	48.72	48.72
Total Variable Production Costs		120.75	149.55	178.35	118.61	149.71	176.21
Net Returns over Variable Costs		-41.85	77.29	173.48	-31.56	61.47	138.64
less estimated Fixed Costs:							
Equipment		75.14	75.14	75.14	75.14	75.14	75.14
(depreciation, interest,							
Land insurance, housing)		31.59	31.59	31.59	31.59	31.59	31.59
(average rent/ac)							
Returns over all Costs**		-148.59	-29.45	66.74	-138.30	-45.27	31.90

* Calculated average of seeding year and established yields over stand life.

** Production costs only - does not include costs to store or sell the crop

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CROP ANALYSIS

Table B18. BUDGET ASSUMPTIONS FOR TIMOTHY HAY CROP, 1994, MT. PLEASANT, NY, WITH 88 LB OF N ADDED AS MANURE.

Factor	Mgmt level:		Early			Late		
	Lb N/ac		0	120	240	0	120	240
Stand life, yr (excluding the seeding year)			6	6	6	6	6	6
Cuts per year, number			4.0	4.0	4.0	3.0	3.0	3.0
Yield, tns/ac: Established			1.1	2.6	3.9	1.3	2.8	3.9
Seeding year			0.54	1.28	1.93	0.64	1.39	1.94
Average*			1.00	2.38	3.59	1.19	2.59	3.59
Feed value per ton								
Dry Hay Equivalent, \$ (estimated)			79.26	95.35	97.98	72.89	81.60	87.59
		(Cost /unit)						
Seed, lb/ac or cost/ac alfalfa		3.15						
(w/o companion crop) Timothy		0.78	8	8	8	8	8	8
Lime, tn/ac (seeding year or annual)	28.91		0	0	0	0	0	0
Fertilizer								
Seeding year or plante N lb/ac	0.24		50	50	50	50	50	50
P lb/ac	0.23		10	10	10	10	10	10
K lb/ac	0.13		20	20	20	20	20	20
Top or side dressing (maint) N lb/ac			0	32	152	0	32	152
P lb/ac			10			10		
K lb/ac	0.13		20			20		

Note: All budgets are for crops produced on the same land resource and with the same equipment complement.

* Calculated average of seeding year and established yields over stand life for hay crops.

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CROP ANALYSIS

Table B19. Economic Comparison of Timothy Hay Crops Harvested as Dry Hay as Influenced by N Fertilization and Cutting Management Level, Mt. Pleasant, NY, 1994.*

Factor	Mgmt level:			Late			
	Hay Crop:	0	120	240	0	120	240
Stand life, yr (excluding the seeding yr)		6	6	6	6	6	6
Cuts per year, number		4	4	4	3	3	3
Yield, tons/acre**		1.00	2.38	3.59	1.19	2.59	3.59
Feed value per ton of dry HE, \$		79.26	95.35	97.98	72.89	81.60	87.59
Returns		\$	\$	\$	\$	\$	\$
Crop value per acre		78.90	226.84	351.83	87.04	211.17	314.84
Variable Growing Costs							
Seed	(includes prorated seeding costs)	0.89	0.89	0.89	0.89	0.89	0.89
Fertility							
- Fertilizer		7.31	10.09	38.89	7.31	10.09	38.89
Pesticides	- Lime	0.00	0.00	0.00	0.00	0.00	0.00
Equipment		2.35	2.35	2.35	2.33	2.33	2.33
- Fuel, oil		2.20	2.20	2.20	2.01	2.01	2.01
Other	- Repair	2.51	2.51	2.51	2.51	2.51	2.51
Tot. Var. Growing Cos (overhead, scouting, soil tests)		15.27	18.05	46.85	15.06	17.84	46.64
Variable Harvesting Costs							
Equipment		11.54	11.54	11.54	11.54	11.54	11.54
- Fuel, oil		13.95	13.95	13.95	13.95	13.95	13.95
Twine	- Repair	8.08	8.08	8.08	5.02	5.02	5.02
Other		3.77	3.77	3.77	3.77	3.77	3.77
Total Variable Harvesting Costs		37.33	37.33	37.33	34.28	34.28	34.28
Interest - Operating		4.47	4.47	4.47	3.63	3.63	3.63
Labor		52.54	52.54	52.54	51.26	51.26	51.26
(seeding & harvest)							
Total Variable Production Costs		109.61	112.39	141.19	104.23	107.01	135.81
Net Returns over Variable Costs		-30.72	114.44	210.63	-17.19	104.17	179.03
less estimated Fixed Costs for:							
Equipment		75.14	75.14	75.14	75.14	75.14	75.14
Land	(depreciation, interest, insurance, housing)	31.59	31.59	31.59	31.59	31.59	31.59
	(average rent/ac)						
Returns over all Costs***		-137.45	7.71	103.90	-123.92	-2.57	72.30

* Assumes 88 lb N/yr are added as manure.

** Calculated average of seeding year and established yields over stand life.

*** Production costs only - does not include costs to store or sell the crop

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CROP ANALYSIS

Table B20. Economic Comparison of Timothy Hay Crops Harvested as Hay Crop Silage as Influenced by N Fertilization and Cutting Management Level, Mt. Pleasant, 1994.*

Factor	Mgmt level: Hay Crop:	Early			Late		
		0	120	240	0	120	240
Stand life, yr (excluding the seeding year)		6	6	6	6	6	6
Cuts per year, number		4	4	4	3	3	3
Yield, in dry Hay Equiv, tons/acre**		1.00	2.38	3.59	1.19	2.59	3.59
Feed value per ton of dry Hay Eq, \$		79.26	95.35	97.98	72.89	81.60	87.59
		\$	\$	\$	\$	\$	\$
Returns							
Crop value per acre		78.90	226.84	351.83	87.04	211.17	314.84
Variable Growing Costs							
Seed (includes prorated seeding costs)		0.89	0.89	0.89	0.89	0.89	0.89
Fertility							
- Fertilizer		7.31	10.09	38.89	7.31	10.09	38.89
Pesticides - Lime		0.00	0.00	0.00	0.00	0.00	0.00
Equipment		2.35	2.35	2.35	2.33	2.33	2.33
- Fuel, oil		2.20	2.20	2.20	2.01	2.01	2.01
Other - Repair		2.51	2.51	2.51	2.51	2.51	2.51
Tot. Var. Growing Cost (overhead, scouting, soil tests)		15.27	18.05	46.85	15.06	17.84	46.64
Variable Harvesting Costs							
Equipment		21.04	21.04	21.04	21.04	21.04	21.04
- Fuel, oil		25.57	25.57	25.57	25.59	25.59	25.59
Other - Repair		3.77	3.77	3.77	3.77	3.77	3.77
Total Variable Harvesting Costs		50.38	50.38	50.38	50.40	50.40	50.40
Interest - Operating		5.09	5.09	5.09	4.42	4.42	4.42
Labor		50.00	50.00	50.00	48.72	48.72	48.72
Total Variable Production Costs		120.75	123.53	152.33	118.61	121.39	150.19
Net Returns over Variable Costs		-41.85	103.31	199.50	-31.56	89.79	164.66
less estimated Fixed Costs:							
Equipment		75.14	75.14	75.14	75.14	75.14	75.14
(depreciation, interest,							
Land insurance, housing)		31.59	31.59	31.59	31.59	31.59	31.59
(average rent/ac)							
Returns over all Costs***		-148.59	-3.43	92.76	-138.30	-16.95	57.92

* Assumes 88 lb N/yr are added as manure.

** Calculated average of seeding year and established yields over stand life.

*** Production costs only - does not include costs to store or sell the crop

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CROP ANALYSIS

Table B21. BUDGET ASSUMPTIONS FOR TIMOTHY HAY CROP, 1995, MT. PLEASANT, NY.

Factor	Mgmt level:		Early			Late		
	Lb	N/ac	0	120	240	0	120	240
Stand life, yr (excluding the seeding year)			6	6	6	6	6	6
Cuts per year, number			4.0	4.0	4.0	3.0	3.0	3.0
Yield, tns/ac: Established			0.5	1.2	2.1	0.7	1.8	2.8
Seeding year			0.26	0.59	1.04	0.35	0.90	1.42
Average*			0.47	1.09	1.92	0.65	1.67	2.63
Feed value per ton								
Dry Hay Equivalent, \$ (estimated)			78.17	88.83	93.60	71.41	81.32	86.04
		(Cost /unit)						
Seed, lb/ac or cost/ac	alfalfa	3.15						
(w/o companion crop)	Timothy	0.78	8	8	8	8	8	8
Lime, tn/ac (seeding year or annual)		28.91	0	0	0	0	0	0
Fertilizer								
Seeding year or plante	N lb/ac	0.24	50	50	50	50	50	50
	P lb/ac	0.23	10	10	10	10	10	10
	K lb/ac	0.13	20	20	20	20	20	20
Top or side dressing (maint)	N lb/ac		0	120	240	0	120	240
	P lb/ac		10	10	10	10	20	10
	K lb/ac		20	20	20	20	20	20

Note: All budgets are for crops produced on the same land resource and with the same equipment complement.

* Calculated average of seeding year and established yields over stand life for hay crops.

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CROP ANALYSIS

Table B22. Economic Comparison of Timothy Hay Crops Harvested as Dry Hay as Influenced by N Fertilization and Cutting Management Level, Mt. Pleasant, NY, 1995.

Factor	Mgmt level:	Early			Late		
	Hay Crop:	0	120	240	0	120	240
Stand life, yr (excluding the seeding yr)		6	6	6	6	6	6
Cuts per year, number		4	4	4	3	3	3
Yield, tons/acre*		0.47	1.09	1.92	0.65	1.67	2.63
Feed value per ton of dry HE, \$		78.17	88.83	93.60	71.41	81.32	86.04
Returns		\$	\$	\$	\$	\$	\$
Crop value per acre		37.02	96.51	179.91	46.42	135.92	226.10
Variable Growing Costs							
Seed (includes prorated seeding costs)		0.89	0.89	0.89	0.89	0.89	0.89
Fertility							
- Fertilizer		7.31	36.11	64.91	7.31	38.41	64.91
Pesticides - Lime		0.00	0.00	0.00	0.00	0.00	0.00
Equipment		2.35	2.35	2.35	2.33	2.33	2.33
- Fuel, oil		2.20	2.20	2.20	2.01	2.01	2.01
Other - Repair		2.51	2.51	2.51	2.51	2.51	2.51
Tot. Var. Growing Cos (overhead, scouting, soil tests)		15.27	44.07	72.87	15.06	46.16	72.66
Variable Harvesting Costs							
Equipment		11.54	11.54	11.54	11.54	11.54	11.54
- Fuel, oil		13.95	13.95	13.95	13.95	13.95	13.95
Twine - Repair		8.08	8.08	8.08	5.02	5.02	5.02
Other		3.77	3.77	3.77	3.77	3.77	3.77
Total Variable Harvesting Costs		37.33	37.33	37.33	34.28	34.28	34.28
Interest - Operating		4.47	4.47	4.47	3.63	3.63	3.63
Labor (seeding & harvest)		52.54	52.54	52.54	51.26	51.26	51.26
Total Variable Production Costs		109.61	138.41	167.21	104.23	135.33	161.83
Net Returns over Variable Costs		-72.59	-41.91	12.70	-57.81	0.59	64.27
less estimated Fixed Costs for:							
Equipment (depreciation, interest, insurance, housing)		75.14	75.14	75.14	75.14	75.14	75.14
Land (average rent/ac)		31.59	31.59	31.59	31.59	31.59	31.59
Returns over all Costs**		-179.33	-148.64	-94.04	-164.55	-106.14	-42.46

* Calculated average of seeding year and established yields over stand life.

** Production costs only - does not include costs to store or sell the crop

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CROP ANALYSIS

Table B23. Economic Comparison of Timothy Hay Crops Harvested as Hay Crop Silage as Influenced by N Fertilization and Harvest Management Level, Mt. Pleasant, 1995.

Factor	Mgmt level: Hay Crop:	Early			Late		
		0	120	240	0	120	240
Stand life, yr (excluding the seeding year)		6	6	6	6	6	6
Cuts per year, number		4	4	4	3	3	3
Yield, in dry Hay Equiv, tons/acre*		0.47	1.09	1.92	0.65	1.67	2.63
Feed value per ton of dry Hay Eq, \$		78.17	88.83	93.60	71.41	81.32	86.04
		\$	\$	\$	\$	\$	\$
Returns							
Crop value per acre		37.02	96.51	179.91	46.42	135.92	226.10
Variable Growing Costs							
Seed (includes prorated seeding costs)		0.89	0.89	0.89	0.89	0.89	0.89
Fertility							
- Fertilizer		7.31	36.11	64.91	7.31	38.41	64.91
Pesticides - Lime		0.00	0.00	0.00	0.00	0.00	0.00
Equipment		2.35	2.35	2.35	2.33	2.33	2.33
- Fuel, oil		2.20	2.20	2.20	2.01	2.01	2.01
Other - Repair		2.51	2.51	2.51	2.51	2.51	2.51
Tot. Var. Growing Cost (overhead, scouting, soil tests)		15.27	44.07	72.87	15.06	46.16	72.66
Variable Harvesting Costs							
Equipment		21.04	21.04	21.04	21.04	21.04	21.04
- Fuel, oil		25.57	25.57	25.57	25.59	25.59	25.59
Other - Repair		3.77	3.77	3.77	3.77	3.77	3.77
Total Variable Harvesting Costs		50.38	50.38	50.38	50.40	50.40	50.40
Interest - Operating		5.09	5.09	5.09	4.42	4.42	4.42
Labor		50.00	50.00	50.00	48.72	48.72	48.72
Total Variable Production Costs		120.75	149.55	178.35	118.61	149.71	176.21
Net Returns over Variable Costs		-83.73	-53.04	1.56	-72.19	-13.78	49.90
less estimated Fixed Costs:							
Equipment		75.14	75.14	75.14	75.14	75.14	75.14
(depreciation, interest,							
Land insurance, housing)		31.59	31.59	31.59	31.59	31.59	31.59
(average rent/ac)							
Returns over all Costs**		-190.46	-159.78	-105.17	-178.92	-120.52	-56.84

* Calculated average of seeding year and established yields over stand life.

** Production costs only - does not include costs to store or sell the crop

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CROP ANALYSIS

Table B24. BUDGET ASSUMPTIONS FOR TIMOTHY HAY CROP, 1995, MT. PLEASANT, NY, WITH 88 LB OF N ADDED AS MANURE.

Factor	Mgmt level:		Early			Late		
	Lb	N/ac	0	120	240	0	120	240
Stand life, yr (excluding the seeding year)			6	6	6	6	6	6
Cuts per year, number			4.0	4.0	4.0	3.0	3.0	3.0
Yield, tns/ac: Established			0.5	1.2	2.1	0.7	1.8	2.8
Seeding year			0.26	0.59	1.04	0.35	0.90	1.42
Average*			0.47	1.09	1.92	0.65	1.67	2.63
Feed value per ton								
Dry Hay Equivalent, \$ (estimated)			78.17	88.83	93.60	71.41	81.32	86.04
		(Cost /unit)						
Seed, lb/ac or cost/ac	alfalfa	3.15						
(w/o companion crop)	Timothy	0.78	8	8	8	8	8	8
Lime, tn/ac (seeding year or annual)		28.91	0	0	0	0	0	0
Fertilizer								
Seeding year or plante	N lb/ac	0.24	50	50	50	50	50	50
	P lb/ac	0.23	10	10	10	10	10	10
	K lb/ac	0.13	20	20	20	20	20	20
Top or side dressing (maint)	N lb/ac		0	32	152	0	32	152
	P lb/ac		10			10		
	K lb/ac	0.13	20			20		

Note: All budgets are for crops produced on the same land resource and with the same equipment complement.

* Calculated average of seeding year and established yields over stand life for hay crops.

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CROP ANALYSIS

Table B25. Economic Comparison of Timothy Hay Crops Harvested as Dry Hay as Influenced by N Fertilization and Cutting Management Level, Mt. Pleasant, NY, 1995.*

Factor	Mgmt level:	Early			Late		
	Hay Crop:	0	120	240	0	120	240
Stand life, yr (excluding the seeding yr)		6	6	6	6	6	6
Cuts per year, number		4	4	4	3	3	3
Yield, tons/acre**		0.47	1.09	1.92	0.65	1.67	2.63
Feed value per ton of dry HE, \$		78.17	88.83	93.60	71.41	81.32	86.04
Returns		\$	\$	\$	\$	\$	\$
Crop value per acre		37.02	96.51	179.91	46.42	135.92	226.10
Variable Growing Costs							
Seed	(includes prorated seeding costs)	0.89	0.89	0.89	0.89	0.89	0.89
Fertility							
- Fertilizer		7.31	10.09	38.89	7.31	10.09	38.89
Pesticides - Lime		0.00	0.00	0.00	0.00	0.00	0.00
Equipment		2.35	2.35	2.35	2.33	2.33	2.33
- Fuel, oil		2.20	2.20	2.20	2.01	2.01	2.01
Other - Repair		2.51	2.51	2.51	2.51	2.51	2.51
Tot. Var. Growing Cos (overhead, scouting, soil tests)		15.27	18.05	46.85	15.06	17.84	46.64
Variable Harvesting Costs							
Equipment		11.54	11.54	11.54	11.54	11.54	11.54
- Fuel, oil		13.95	13.95	13.95	13.95	13.95	13.95
Twine - Repair		8.08	8.08	8.08	5.02	5.02	5.02
Other		3.77	3.77	3.77	3.77	3.77	3.77
Total Variable Harvesting Costs		37.33	37.33	37.33	34.28	34.28	34.28
Interest - Operating		4.47	4.47	4.47	3.63	3.63	3.63
Labor		52.54	52.54	52.54	51.26	51.26	51.26
(seeding & harvest)							
Total Variable Production Costs		109.61	112.39	141.19	104.23	107.01	135.81
Net Returns over Variable Costs		-72.59	-15.89	38.72	-57.81	28.91	90.29
less estimated Fixed Costs for:							
Equipment		75.14	75.14	75.14	75.14	75.14	75.14
(depreciation, interest,							
Land insurance, housing)		31.59	31.59	31.59	31.59	31.59	31.59
(average rent/ac)							
Returns over all Costs***		-179.33	-122.62	-68.02	-164.55	-77.82	-16.44

* Assumes 88 lb N/yr are added as manure.

** Calculated average of seeding year and established yields over stand life.

*** Production costs only - does not include costs to store or sell the crop

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CROP ANALYSIS

Table B26. Economic Comparison of Timothy Hay Crops Harvested as Hay Crop Silage as Influenced by N Fertilization and Cutting Management Level, Mt. Pleasant, 1995.*

Factor	Mgmt level: Hay Crop:	Early			Late		
		0	120	240	0	120	240
Stand life, yr (excluding the seeding year)		6	6	6	6	6	6
Cuts per year, number		4	4	4	3	3	3
Yield, in dry Hay Equiv, tons/acre**		0.47	1.09	1.92	0.65	1.67	2.63
Feed value per ton of dry Hay Eq, \$		78.17	88.83	93.60	71.41	81.32	86.04
		\$	\$	\$	\$	\$	\$
Returns							
Crop value per acre		37.02	96.51	179.91	46.42	135.92	226.10
Variable Growing Costs							
Seed (includes prorated seeding costs)		0.89	0.89	0.89	0.89	0.89	0.89
Fertility							
- Fertilizer		7.31	10.09	38.89	7.31	10.09	38.89
Pesticides - Lime		0.00	0.00	0.00	0.00	0.00	0.00
Equipment		2.35	2.35	2.35	2.33	2.33	2.33
- Fuel, oil		2.20	2.20	2.20	2.01	2.01	2.01
Other - Repair		2.51	2.51	2.51	2.51	2.51	2.51
Tot. Var. Growing Cost (overhead, scouting, soil tests)		15.27	18.05	46.85	15.06	17.84	46.64
Variable Harvesting Costs							
Equipment		21.04	21.04	21.04	21.04	21.04	21.04
- Fuel, oil		25.57	25.57	25.57	25.59	25.59	25.59
Other - Repair		3.77	3.77	3.77	3.77	3.77	3.77
Total Variable Harvesting Costs		50.38	50.38	50.38	50.40	50.40	50.40
Interest - Operating		5.09	5.09	5.09	4.42	4.42	4.42
Labor		50.00	50.00	50.00	48.72	48.72	48.72
Total Variable Production Costs		120.75	123.53	152.33	118.61	121.39	150.19
Net Returns over Variable Costs		-83.73	-27.02	27.58	-72.19	14.54	75.92
less estimated Fixed Costs:							
Equipment		75.14	75.14	75.14	75.14	75.14	75.14
Land (depreciation, interest, insurance, housing) (average rent/ac)		31.59	31.59	31.59	31.59	31.59	31.59
Returns over all Costs***		-190.46	-133.76	-79.15	-178.92	-92.20	-30.82

* Assumes 88 lb N/yr are added as manure.

** Calculated average of seeding year and established yields over stand life.

*** Production costs only - does not include costs to store or sell the crop

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