

Sheet1

3 STREAMS FARM TRIAL with GOATS & STEER, Comparisons of milk yield, DM, \$\$ savings, etc,
between measured 7-day periods with leaf-silage or 2nd-cut hay offerings * 1st-cut hay is eaten plus wasted

DAILY AVERAGES per MEASURED TRIAL PERIOD (4-day transitions between 7-day measurement periods not included):

Measure -ment Per.	lbs. DM leaf-s	lbs. DM goats	lbs. DM 1 st -cut hay total	lbs. DM leaf-silage + hay	lbs. milk total adjusted to 24 hrs.
A L	19.79	25.34	28.25	53.59	5.08
B L	17.57	22.56	31.43	50.93	5.55
C L	20.68	23.96	32.63	56.58	6.59
Av./per.	19.35	23.95	30.77	53.7	6.07

Measure -ment Per.	lbs. DM cut	lbs. DM 2 nd -cut goats	lbs. DM 2 nd -cut hay total	lbs. DM 1 st -cut hay	lbs. DM hay total	lbs. milk total adjusted to 24 hrs.
A H	16.46	25.57	28.51	54.08	5.86	
B H	18.85	28.93	26.14	55.07	6.83	
C H	22.76	27.8	27.49	55.29	6.69	
Av./per.	19.36	27.43	27.38	54.81	6.46	

(giving steer almost 2X as much 2nd cut as leaf-s equiv.)

- 30 Av. leaf-s DM M-Periods Steer + Goats, translated into equivalent lbs. 2nd cut hay as fed
- 24 Av. leaf-s DM M-Periods Goats only, translated into lbs. 2nd cut hay as fed
- 6 Av. leaf-s DM M-Periods Steer only, translated into lbs. 2nd cut hay as fed

leaf-s steer	lbs. DM	equiv lbs hay as fed
A L S	13.89	5.556
B L S	12.46	4.984
C L S	10.61	4.244
ave.	12.32	4.93

Everyone ate a bit more DM in the Hay-Only periods vs the Leaf-Silage periods, until the last rotation, when they ate more DM in the Leaf-Silage period than in the Hay-Only period. Perhaps this change was because I had taken more barrels from FV Farm at the end, and was more generous with the leaf-silage.

Over all, the longer day lengths should correlate with rising DM Intake throughout. This was the case, with exception of the 2nd Leaf-Silage period, in which everyone ate less DM than in any other period. I need to look at that period's offerings and weather more closely.

Each Hay-Only period was after the corresponding Leaf-Silage period, with longer day-lengths, which may have contributed to higher DM Intake during Hay-Only periods.

Lbs. Leaf-silage Goats only chart:				Lbs. 2 nd -cut hay Goats only chart:	
L-s 2 hrs	L-s o-nite	L-s T	L-s T DM	as fed	DM
A L G	41.25	8.22	49.47	20.57	16.46
B L G	36.29	7.64	43.93	23.56	18.85
C L G	45.25	6.45	51.7	28.45	22.76
ave.	40.93	7.44	48.37	24.19	19.36

2 nd -cut hay T	as fed	DM
A H T	31.96	25.57
B H T	36.16	28.93
C H T	34.75	27.8
ave.	34.29	27.43

DM Intake based on refs	Estimated DM 5 Milkers ate, 45% of T, 4.5% BW	Estimated DM 5 Non-milkers ate, 25% of T, 3% BW	Estimated DM Steer ate, 30% T, 2% BW	Actual DM used	10% 1 st -cut hay est waste	Est DM eaten (U - 10% 1 st -cut hay)	1 st -cut hay DM used	1 st -cut hay DM eaten (-10%)
AL	22.5	12.5	15	53.59	2.83	50.76	28.25	25.42
AH	22.842	12.69	15.228	54.08	2.85	51.23	28.51	25.66
BL	21.5055	11.9475	14.337	50.93	3.14	47.79	31.43	28.29
BH	23.0535	12.8075	15.369	55.07	2.61	52.46	26.14	23.53
CL	23.994	13.33	15.996	56.58	3.26	53.32	32.63	29.37
CH	23.643	13.135	15.762	55.29	2.75	52.54	27.49	24.74
Ave:	22.78	12.66	15.19	54.26	2.91	50.62	27.43	24.74

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Milking Goats estimated DM/day related to milk yields: .01 lbs milk/lb DM less x 1 ave goat DM/day=.047 lbs less milk/goat/day

Period	Leaf-s & hay, DM 5 Milking Goats	Leaf-silage DM 5 Milking Goats	1 st -cut hay DM 5 Milking Goats	Ave. T lbs. milk, adj to 24 hrs.	lbs milk/ lb DM	Period	T hay DM 5 Milking Goats	2 nd -cut H-only, DM 5 Milking Goats	1 st -cut H-only, DM 5 Milking Goats	ave T lbs. milk adj to 24 hrs.	lbs milk/ lb DM
AL	22.84	12.72	10.12	5.08	0.23	AH	23.0535	10.58	12.4735	5.86	0.25
BL	21.51	11.29	10.22	5.55	0.26	BH	23.607	12.12	11.487	6.83	0.29
CL	23.99	13.29	10.7	6.59	0.28	CH	23.643	14.63	9.013	6.69	0.28
ave.	22.78	12.44	10.35	5.74	0.26	ave.	23.44	12.44	11	6.46	0.27
1 av Goat:	4.56	2.49	2.07	1.15		1 av Goat:	4.69	2.49	2.2	1.29	

5 milk goats ate .65 lbs DM less = .81 lbs less 1st -cut hay in L periods than in H periods.
6% less 1st-cut hay eaten in Leaf-Silage periods than 2nd-cut Hay periods
%

These low milk yields reflect a goat diet of ONLY forages (no concentrates).

Goats' milk yield went up approximately 15% from 1st measured Leaf-Silage period ave to 1st Hay-Only period ave, then dropped 5% of that to 2nd Leaf-Silage period ave, then rose 5% of that to 2nd Hay-Only period ave, then dropped 3.5% to 3rd Leaf-Silage period ave, then rose 1.5% of that to 3rd Hay-Only period ave.

Excepting the first jump up, (that week included the Winter Solstice), these changes were insignificant. Lbs milk/DM Intake changes were even less significant.

Per my estimated allotment of shared 1st-cut hay, in Leaf-Silage periods the Leaf-silage was 55% of milking goats' diet, 56% of non-milkers' diet, and 32.5% of the steer's diet, on a DM basis.

	Estimated T DM Steer 30% T, 2% BW	Leaf-silage DM Steer	1 st -cut hay DM Steer T - leaf-silage	1 st -cut hay = lbs. DM eaten T	1 st -cut hay DM 10 Goats T 1 st -cut - Steer	1 st -c DM 5 Milk goats hay = .643T goats
AL DM	15.228	5.556	9.672	25.42	15.748	10.125964
BL DM	14.337	4.984	9.353	28.29	18.937	12.176491
CL DM	15.996	4.244	11.752	29.37	17.618	11.328374
ave.	15.19	4.93	10.26	27.69	17.434	11.21028

(still 1lb higher^)

	Milkers	Non-milk	Steer	T DM
T L-H DM ave	22.78	12.66	15.19	50.63
T H-H DM ave	23.44	13.02	15.62	52.08

	Total DM used, goats & steer	Est DM eaten (used - 10% 1 st -cut hay)	1 st -cut hay DM used eaten (used-10%)	1 st -cut hay lbs DM	lbs. DM 2 nd -cut hay	Total hay DM used
AL	53.59	50.76	28.25	25.42	0	28.25
AH		54.08	51.23	28.51	25.66	25.57
BL	50.93	47.79	31.43	28.29	0	31.43
BH		55.07	52.46	26.14	23.53	28.93
CL	56.58	53.32	32.63	29.37	0	32.63
CH		55.29	52.54	27.49	24.74	27.8
Ave:	53.70	54.81	50.62	52.08	30.77	27.38
				27.69	24.64	0.00
						27.43
						30.77
						54.81

27.53 lbs DM 2nd-cut saved - 3.4 lbs more DM 1st-cut eaten (steer) during Leaf-Silage periods = 24.13 lbs DM hay saved.

34.41 lbs as fed 2nd-cut minus 4.25 lbs as fed 1st-cut Saved = 30.16 lbs as fed hay saved

44% less hay eaten in Leaf-Silage periods than in 2nd-cut Hay periods

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HAY LBS AS FED:	1 st -cut hay used, lbs/day as fed		1 st -cut hay eaten (u-10%), lbs/day as fed		2 nd -cut hay, lbs/day as fed		Total hay used, lbs/day as fed	
	L per ave	H per ave	L per ave	H per ave	L per ave	H per ave	L per ave	H per ave
	38.46	34.23	34.62	30.80	0.00	34.29	38.46	65.10

37 lb bales?

Leaf periods: % 1st cut more 0.1149 Hay periods: 2nd-cut 0.926757 % of 37 lb bale
 \$ spent on 0.5743 \$ spent on \$9.27
 So we saved \$8.70/day x 30 days of leaf-silage = \$261.

Milking Goats estimated DM/day related to milk yields:

Period	Leaf-s & hay, DM 5 Milking Goats	Leaf-silage DM 5 Milking Goats	1 st -cut hay DM 5 Milking Goats	Ave. T lbs. milk, adj to 24 hrs.	lbs milk/ lb DM	Period	T hay DM 5 Milking Goats	2 nd -cut H-only, DM 5 Milking Goats	1 st -cut H-only, DM 5 Milking Goats	ave T lbs. milk adj to 24 hrs.	lbs milk/ lb DM
AL						AH	23.0535	10.58	12.4735	5.86	0.25
BL	21.51	11.29	10.22	5.55	0.26	BH	23.607	12.12	11.487	6.83	0.29
CL	23.99	13.29	10.7	6.59	0.28	CH	23.643	14.63	9.013	6.69	0.28
ave.	22.75	12.29	10.46	6.07	0.2668	ave.	23.44	12.44	11	6.46	0.2756
Goat:	4.55	2.458	2.092	1.214		1 av Goat:	4.69	2.49	2.2	1.29	

When discounting AL period to control for day-length,
 6% less milk in leaf-silage periods than in 2nd-cut hay periods
 4.9% less 1st-cut hay eaten in leaf-silage than 2nd-cut hay periods.
 2.9% less T DM eaten in leaf-silage period than in 2nd-cut hay period
 0.0088 lbs difference/lb DM (14 oz milk diff/100 lbs DM eaten)

Lbs milk/lb DM 3% less with leaf-s vs 2nd-cut hay, or with leaf-s was 97% of that with 2nd-cut hay.

3.69% Bfat Leaf-silage x 6.07 lbs milk = .22398 lbs
 3.18% Bfat 2nd-cut hay x 6.46 lbs milk = .20543 lbs.

(BL & CL) Leaf-silage lbs Bfat averaged to be 109% of (AH, BH & CH) 2nd -cut hay lbs Bfat.

But this is not correct:

See figures from just same dates as milk tests!,
 on Milk & Bfats spreadsheet.

Period	T hay DM 5 Milking Goats	2 nd -cut H-only, DM 5 Milking Goats	1 st -cut H-only, DM 5 Milking Goats	ave T lbs. milk adj to 24 hrs.	lbs milk/ lb DM
AH	23.0535	10.58	12.4735	5.86	0.25
BH	23.607	12.12	11.487	6.83	0.29
CH	23.643	14.63	9.013	6.69	0.28
ave.	23.44	12.44	11	6.46	0.2756
BL	21.51	11.29	10.22	5.55	0.26
CL	23.99	13.29	10.7	6.59	0.28
	22.75	12.29	10.46	6.07	0.27

When leave off 1st leaf-period, leaf-period lbs milk/lbs DM is 2% lower than in hay-only.
 When leave off 1st leaf-period, milk yield is 6% lower in leaf-periods than in hay-only.
 When leave off 1st leaf-period, leaf-period T DM ave is 3% lower than in hay-only.