Sheet1

3 STREAMS FARM TRIAL Summary of leaf-silage & hay amounts eaten* by goats & steer with computations of milk yield/DM, \$\$ savings, etc. at bottom of sheet *1st-cut hay is eaten plus wasted

with c	With computations of milk yield/DM, \$\$ Savings, etc. at bottom of Sneet *1st-cut hay is eaten plus wasted												
	Rotation A	in 2 hrs 10		left-o	leaf-s	lbs DM leaf-s	lbs 1st-cut		lbs DM leaf-s +		hrs. milk	lbs. milk adjusted to	
	Leaf-silage	goats	steer	goats ate	eaten	(40%)	hay	hay (80%)	hay	total	period	24 hrs.	time milked
T1A L	12/16/23		9				32.81			5.25	29	4.34	4 PM
T2A L	12/17/23		6.5				29			3.5	18.5	4.54	10:35 AM
T3A L	12/18/23	21.5	13.5				29			5.25	26.5	4.75	1 PM
T4A L	12/19/23	31.5	12				40			5	24.75	4.85	1:50 PM
	Average/day	28.31	10.25	8.22	46.78	18.71	32.7	26.16	44,87	4.75	24.69	4.62	
1A L	12/20/23	46.75	15.25				40			4.75	22	5.18	11:45 AM
2A L	12/21/23	31.25	10				40			4.75	23.75	4.8	11:30 PM
3A L	12/22/23	41.5	14.5				40			5	26	4.62	1:15 PM
4A L	12/23/23	30.25	12				32			5	24	5	1:15 PM
5A L	12/24/23	38.75	11.5				31.6			5.25	23.75	5.31	1 PM
6A L	12/25/23	46	20				32			5.5	24.25	5.44	1:10 PM
7A L	12/26/23	54.25	14				31.6			5.5	25.5	5.18	2:35 PM
W	12/27/23	Wanderi	ing day				{37.26}			(5)	(24)	(5)	2:30 PM
	Average/day	41.25	13.89	8.22	63.36	25.34	35.31	28.25	53.59	5.11	24.18	5.08	
	Dotation A	lbs 2 nd -cut			lbs 2 nd -cut	lbs DM	lbo 1st out	lbo DM 1st	lbs DM	النم سنالد	hro mille	lbo mille adi ta	
	Rotation A Hay only	hay 2 hrs 10 goats	steer	left-o goats ate		(80%)	hay	cut (80%)	hay	total	period	lbs. milk adj to 24 hrs.	time milked
T1A H	12/28/23	15	6.5	gave to No	21.5		26.25		38.2				
T2A H	12/29/23	17.25	11.5	1.75	30.5		26.25		45.4				
ТЗА Н	12/30/23	14.5	14.25	5.75	34.5		34		54.8				
T4A H	12/31/23	10.75	9	14.25	34		15		39.2	6	24		
	Average/day	16	11	30.125	25.375		52.44		44.4				
1A H	01/01/24	17.5	11.75	2.5	31.75		30		49.4	6.25	24.5		
2A H	01/02/24	15.75	9.5	1.5	26.75		45		57.4	5.75	24		
3A H	01/03/24	18.5	9.5	2.75	30.75		29		47.8	6	23.5		
4A H	01/04/24	18.25	10.25	2	30.5		38		54.8	6.5	25		
5A H	01/05/24		10	0.75	28.75		39		54.2	5.5	23.5		
6A H	01/06/24		14.25	1	37		30.5		54	5.5	24		
7A H	01/07/24		14.5	3	38.25		38		61	5.5	23.5		
	Average/day	18.64	11.39	1.93	31.96	25.57	35.64	28.51	54.09	5.86	24	5.86	

	Rotation B	in 2 hrs 10		left-o	lbs leaf- silage	lbs DM leaf-s	lbs 1st-cut		lbs DM leaf-s +		hrs. milk	lbs. milk adjusted to		
T4D I	Leaf-silage 01/08/24	goats	steer 13	goats ate	total	(40%) 24.4	hay 21.5	hay (80%) 17.2	hay	total	period	24 hrs.	time milked	
T1B L	01/06/24		9.5		61 50	24.4	38.25	30.6						
T2B L T3B L	01/09/24		8.25		62	24.8	38.25	30.6						
T4B L	01/10/24		16.25		55.25	22.1	**52	41.6						tt in 221/ hro
14D L														** in 32½ hrs
1B L	Average/day 01/12/24	45.31 45.31	11.75 17.5	5.25	57.06 55.75	22.825 22.3	32.67 46	36.8	50 1	5.125	22.5	5.47		
2B L	01/13/24		8.5	5.25	50.75	20.3		27.4	47.7		24.75	5.21		
3B L	01/14/24		10	7		17.9	34.25	27.4	45.3	5.5	23	5.74		
3B L 4B L	01/15/24		11	11.25	63.75	25.5	26	20.8	46.3	5.25	22.75	5.54		
5B L	01/16/24		9.5	8.75		24.5	58	46.4	70.9	5.5	24	5.5		
6B L	01/17/24		13.25	11		24.9	40	32	56.9	5.75	25.25	5.47		
7B L	01/18/24		17.5	5.25	56.25	22.5	36.5	29.2	51.7	5.75	23.25	5.94		
	Average/day	36.29	12.46	7.64	56.39	22.56	39.29	31.43	50.93	5.46	23.64	5.55		
		lbs 2 nd -cut	lhs 2 nd -cut	lhs 2 nd -cut		lbs DM			lbs DM			lbs. milk		
	Rotation B	hay 2 hrs	hay 2 hrs	left-o	lbs 2 nd -cut	2 nd -cut		lbs DM 1st-	1st+2nd-cut			adjusted to	C	
T1B H	Hay only 01/19/2 4	10 goats 29.75	steer 9	goats ate	38.75	(80%) 31	hay 33.25	cut (80%) 26.6	hay 57.6	total 6.125	period 27.75	24 hrs.	time milked	
T2B H	01/20/24			included included	36.75	29.4	30.25	24.2	53.6	5	_			
T3B H	01/21/24		12.25	0.75	34.75	27.8	26	20.8	48.6	5.75	24			
T4B H	01/22/24		13.25	1		29.8	35.25	28.2	58	5.875	23.25			
1 15 11	Average/day	25.06	11.37	0.88	37	29.6	31.19	24.95	54.45	5.69	24.19	5.65		
1B H	01/23/24		9.5		31.625	25.3		25	50.3	6.5	24	0.00		
2B H	01/24/24		14	1.5	38.75	31	45.75	36.6	67.6	7	24.75			
3B H	01/25/24	20	14.5	1	35	28	33	26.4	54.4	7	24.5			
4B H	01/26/24	21	10.75	6.75	38.5	30.8	25.5	20.4	51.2	6.25	22.5			
5B H	01/27/24	22.75	12	0.25	35	28	21.5	17.2	45.2	7.125	24			
6B H	01/28/24	21	13.25	2	36.25	29	36.5	29.2	58.2	7.375	24.5			
7B H	01/29/24	22	14.5	1.5	38	30.4	35.25	28.2	58.6	6.5	23.5			
	Average/day	21.52	12.64	2.04	36.16		32.68	26.14	55.07	6.82	23.96	6.83		
		lbs leaf-s		lbs leaf-s	lbs leaf-	lbs DM			lbs DM			lbs. milk		
	Rotation C Leaf-silage	in 2 hrs 10 goats	in 2 hrs steer	left-o goats ate	silage total	leaf-s (40%)	lbs 1 st -cut hay	lbs DM hay (80%)	leaf-s + hay	lbs. milk total	hrs. milk period	adjusted to 24 hrs.	time milked	
T1C L	01/30/24	•	11.5	10	61	24.4	32.75	26.2	50.6	6.5	24	6.5	2:25 PM	
T2C L	01/31/24	32.25	11.25	6.5	50	20	44.5	35.6	55.6	6.125	24.5	6	2:55 PM	*** in 28 hrs.
T3C L	02/01/24	18.75	8.5	9.5	36.75	14.7	36.5	29.2	43.9	5.5	21	6.29	12 noon	**** ave 1hr
T4C L	02/02/24	34	9.75	5.5	49.25	22.14	***67	53.6	75.74	6.5	24.5	6.37		more/day: shifted trial periods for SW
	Average/day	51.125	10.25	7.875	49.25	20.31	****45.19	36.15	56.46	6.16	23.5	6.29		webinars

	Rotation C Leaf-silage continued			lbs leaf-s left-o goats ate	lbs leaf- silage total	lbs DM leaf-s (40%)	lbs 1 st -cut hay	lbs DM hay (80%)	lbs DM leaf-s + hay	lbs. milk total	hrs. milk period	lbs. milk adjusted to 24 hrs.	time milked
1C L	02/03/24	41.25	10	1	52.25	20.9	45.5	36.4	57.3	6.25	19.245	7.79	
2C L	02/04/24	51.25	13	included	64.25	25.7	32.5	26	51.7	6	24.5		
3C L	02/05/24	47	7.5	2	56.5	22.6	50.75	40.6	63.2	6.625	24		
4C L	02/06/24	48.5	8.5	2.75	59.75	23.9	40.25	32.2	56.1	6.75	24.75		
5C L	02/07/24	37.75	9.25	8.25	55.25	22.1	40	32	54.1	6.625	24.25		
6C L	02/08/24	51.5	15	7.75	74.25	29.7	38.75	31	60.7	6.5	24.25		
7C L	02/09/24	39.5	11	6.5	57	22.8	37.75	30.2	53	6.375	23.5		
	Average/day	45.25	10.61	6.45	59.89	23.96	40.79	32.63	56.58	6.45	23.5	6.59	
	Rotation C Hay only	lbs 2 nd -cut hay 2 hrs 10 goats	lbs 2 nd -cut hay 2 hrs steer		lbs 2 nd -cut hay total	lbs DM 2 nd -cut (80%)	lbs. 1 st -cut	lbs DM 1 st - cut (80%)	Lbs DM 1 st +2 nd -cut hay	lbs. milk total	hrs. milk	lbs. milk adjusted to 24 hrs.	time milked
T1C H	02/10/24	•	11.5	2.5	-	(==:-)	37.75	, ,	54.4	6.5	25.5		
T2C H	02/11/24	20	11	not left	31		45.25	36.2	61	5.75	22.5		
ТЗС Н	02/12/24	20	13	not left	33		39.25	31.4	57.8	6.5	24.25		
T4C H	02/13/24	18.5	13.5	0.5	32.5		40	32	58	7	24		
	Average/day	18.69	12.25	1.5	31.69	25.35	40.56	32.45	57.8	6.44	24.06	6.43	
1C H	02/14/24	22	11.5	2.5	36	28.8	32	25.6	54.4	6.375	24	6.375	
2C H	02/15/24	23.25	8.25	not left	31.5	25.2	33.25	26.6	51.8	5.125	19.75	6.23	
3C H	02/16/24	18.25	11	g 3½ hrs	29.25	23.4	33.5	26.8	50.2	6.875	24.25	6.8	
4C H	02/17/24	left 24 hrs	11	23	34	27.2	36.25	29	56.2	6.125	21	7	
5C H	02/18/24	24	14	2.25	40.25	32.2	36.25	29	61.2	7.5	27.5	6.55	
6C H	02/19/24	10.25	11.75	13.75	35.75	28.6	29.5	23.6	52.2	6.625	23	6.91	
7C H	02/20/24	22.25	13.5	0.75	36.5	29.2	39.75	31.8	61	7.375	25.5	6.94	
	Average/day	20	11.57	8.45	34.75	27.8	34.36	27.49	55.29	6.57	23.57	6.69	

DAILY AVERAGES PER TRIAL PERIOD:

Trans. Period	lbs. DM leaf-silage goats only	lbs. DM leaf-s total	lbs. DM 1 st -cut hay total	lbs DM leaf-s + hay	lbs. milk total	9	milk total adj. to 24 Measure- hrs. ment Per.	leaf-s	lbs. DM leaf-s goats	lbs. DM leaf-s total	lbs. DM 1 st -cut hay total	lbs DM leaf- silage + hay	lbs. milk total adjusted to 24 hrs.
TA L		18.71	26.16	34.87	4.75	24.69	4.62 A L	63.36	19.79	25.34	28.25	53.59	5.08
TB L							ВL	56.39	17.57	22.56	31.43	50.93	5.55
TC L							CL	59.89	20.68	23.96	32.63	56.58	6.59
Av./per.							Av./per.	59.88	19.35	23.95	30.77	53.7	6.07

Trans. Period	lbs. DM 2 nd - cut hay goats only	2 nd -cut	lbs. DM 1 st -cut hay	lbs. DM hay total	lbs. milk total	milking period, hrs.	milk total adj. to 24 hrs.		Measure- ment Per.		lbs. DM 2 nd -cut hay total	lbs. DM 1 st -cut hay	lbs. DM hay total	lbs. milk total adjusted to 24 hrs.
TA H									АН	16.46	25.57	28.51	54.08	5.86
тв н									ВН	18.85	28.93	26.14	55.07	6.83
TC H	16.15	25.35	32.45	57.8	6.44	24.06	6.43		СН	22.76	27.8	27.49	55.29	6.69
Av./per.									Av./per.	19.36	27.43	27.38	54.81	6.46
30	Av. leaf-s DM I	M-Periods S	Steer + Goa	ats, translate	ed into equi	valent lbs. 2	2 nd cut hay	as fed		leaf-s st			equiv lbs hay as fe	d
24	Av. leaf-s DM I	M-Periods (Soats only,	translated i	nto lbs. 2 nd	cut hay as f	ed			ALS	13.89	5.556		
6	Av. leaf-s DM I	M-Periods S	Steer only, t	translated ir	nto Ibs. 2 nd (cut hay as fe	ed			BLS	12.46	4.984		
										CLS	10.61	4.244		(giving steer almost 2X as much 2nd cut
	Lbs. Leaf-silag	e Goats on	ly chart:			Lbs. 2 nd -cu	t hay Goats	s only chart:		ave.	12.32	4.93	6.16	as leaf-s equiv.)
	L-s 2 hrs	L-s o-nite	L-s T	L-s T DM			as fed	DM						Everyone ate a bit more DM
ALG	41.25	8.22	49.47	19.79		AHG	20.57	16.46	2 ^r	nd -cut hay T	as fed	DM		in the Hay-Only periods vs the
BLG	36.29	7.64	43.93	17.57		BHG	23.56	18.85		AHT	31.96	25.57		Leaf-Silage periods, until the last
CLG	45.25	6.45	51.7	20.68		CHG	28.45	22.76		ВНТ	36.16	28.93		rotation, when they ate more DM in the Leaf-Silage period than in
ave.	40.93	7.44	48.37	19.35		ave.	24.19	19.36		CHT	34.75	27.8		the Hay-Only period. Perhaps
										ave.	34.29	27.43		this change was because I had
		Estimate 5 Milkers		Estimate 5 Non-milk		Estimate Steer a		ALLUAI DIVI	10% 1st- cut hav	Est DM eat	en (U –			taken more barrels from FV
		45% of T, 4		25% of T, 3		30% T, 2%		used		10% 1st-cut				Farm at the end, and was more generous with the leaf-silage.
	DM Intake based on refs	22.5		12.5		15				50		1st-cut hay DM used	eaten (-10%)	Over all, the longer
	AL	22.842		12.69		15.228		53.59	2.83	50.76		28.25	25.42	day lengths should correlate with rising DM Intake throughout.
	AH		23.0535		12.8075		15.369	54.08	2.85		51.23	28.51	25.66	This was the case, with
	BL	21.5055		11.9475		14.337		50.93	3.14	47.79		31.43	28.29	exception of the 2 nd Leaf-Silage
	ВН		23.607		13.115		15.738	55.07	2.61		52.46	26.14	23.53	period, in which everyone ate less DM than in any other period.
	CL	23.994		13.33		15.996		56.58	3.26	53.32		32.63	29.37	I need to look at that period's
	CH		23.643		13.135		15.762	55.29	2.75		52.54	27.49	24.74	offerings and weather more
	Ave:	22.78	23.44	12.66	13.02	15.19	15.62	54.26	2.91	50.62	52.08			closely. Each Hay-Only period was after
														the corresponding Leaf-Silage
	Milking Go	ats esti	mated D	DM/day r	elated t	o milk yi	elds:	.01 lbs milk	/lb DM les	s x 1 ave go	at DM/day	=.047 lbs less m	ilk/goat/day	period, with longer day-lengths, which may have contributed to
				1st-cut hay						2 nd -cut H-				higher DM Intake during Hay-
		hay, DM 5 Milking	DM 5 Milking	DM 5 Milking	lbs. milk, adj to 24	lbs milk/				only, DM 5 Milkina		ave T lbs. milk		Only periods.
	Period		Goats	Goats	hrs.	lb DM			Goats	Goats	Goats	adj to 24 hrs.		
	AL	22.84	12.72	10.12	5.08				23.0535	10.58	12.4735	5.86	0.25	5 milk goats ate .65 lbs DM less = .81 lbs less 1 st -cut hay in L periods than in
	BL	21.51	11.29	10.22	5.55				23.607	12.12	11.487	6.83	0.29	H periods.
	CL	23.99		10.7	6.59			CH	23.643	14.63	9.013	6.69	0.28	6% less 1st-cut hay
	ave.	22.78			5.74			ave.			11	6.46	0.27	eaten in Leaf-Silage % periods than 2 nd -cut
	1 av Goat:	4.56	2.49	2.07	1.15		1 a	av Goat:	4.69	2.49	2.2	1.29		Hay periods 0.05909091

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

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,

concentrates).

on a DM basis.

	Estimated T DM Steer 30% T, 2% BW	Leaf-silage [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	1st-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-mil	k Steer	T DM				
T L-H DM ave	22.78 12.60	6 15.19	50.63				
T H-H DM ave	23.44 13.02	2 15.62	52.08			0.8125	

	Total DM us & ste		Est DM eate 10% 1 st -cut		1 st -cut hay	1 DM used e	st-cut hay la aten (used		lbs. DM 2 ⁿ	d-cut hay	Total hay Di	M used
AL	53.59		50.76		28.25		25.42		0		28.25	
AH		54.08		51.23		28.51		25.66		25.57		54.08
BL	50.93		47.79		31.43		28.29		0		31.43	
ВН		55.07		52.46		26.14		23.53		28.93		55.07
CL	56.58		53.32		32.63		29.37		0		32.63	
CH		55.29		52.54		27.49		24.74		27.8		55.29
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 - 3.4 lbs DM 1st-cut hay saved during Leaf-Silage periods: DM:2 2 424.13 lbs as fed: 34.41 lbs as fed 2 nd -cut minus 4.25 lbs as fed 1 st -cut saved lbs as fed: 30.16 44% less hay eaten in Leaf-Silage periods than in 2 nd -cut Hay periods

HAY LBS AS FED:

1st-cut hay used, lbs/day as fed
1st-cut hay eaten (u10%), lbs/day as fed
2nd-cut hay, lbs/day
as fed
Total hay used, lbs/day as fed
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: $\% 1^{st}$ cut more 0.1149 Hay periods: 2^{nd} -cut 0.926757 % of 37 lb bale

So we saved $\$8.70/\text{day} \times 30 \text{ days of leaf-silage} = \$261.$

Milking Goats estimated DM/day related to milk yields:

Period	Leaf-s & hay, DM 5 Milking Goats	Leaf-silag 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	only, DM	milk adj	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)

	T DM 5 king 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

3.69% Bfat Leaf-silage x 6.07 lbs milk = .22398 lbs 3.18% Bfat 2^{nd} -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!

(in "3 Streams Trial Milk & Buterfat Yields per goat per day" spreadsheet)

When leave off 1st leaf-period, leaf-period lbs milk/lbs DM is 2% lower than in hay-only.

When leave off $\mathbf{1}^{\text{st}}$ 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.