

*Abraham's Creamery*

*Farmstead Cheese and Yogurts in Small Batches*

*1000 Elm St., Newport, Maine 04953*

# Abraham's Goat Farm

2 Acre Field Bruce BFT

Newport, Maine

## Birdsfoot Trefoil Project — started 2014

- **Soil Type: Elliottsville-Chesuncook silt loam**
- **pH: 5.3**
- **Buffer pH: 5.4**
- **P: 9 lbs/acre**
- **K: 265 lbs/acre**
- **Ca: 1492 lbs/acre**
- **Mg: 163 lbs/acre**
- **% OM: 6.7**



# Soil Sample

## Analysis - NY Soil Test

By

### Maine Soil Testing Service

Sample			lb/A	lb/A	lb/A	lb/A	lb/A	lb/A	lb/A	lb/A	lb/A	
<u>Date</u>	<u>soil</u> <u>pH</u>	<u>buffer</u> <u>pH</u>	<u>P</u>	<u>K</u>	<u>Mg</u>	<u>Ca</u>	<u>Al</u>	<u>B</u>	<u>Fe</u>	<u>Mn</u>	<u>Zn</u>	<u>% OM</u>
04/30/14	5.3	5.41	9.0	265	163	1492	402	0.3	23	38	3.9	6.7



# Abraham's Goat Farm Nov 2014

**Limed November 11<sup>th</sup>**



**Plowed Nov 14<sup>th</sup>**





Ag lime 66% ENV Lime 4.5 Acre /ton  
Plowed in on November 14<sup>th</sup>, 2014





# Photos in early Spring 2015 of the overwintered field





# May 14<sup>th</sup>, 2015 Disked/picked rocks



# May 16<sup>th</sup>, 2015

**Applied more ag lime, 66% ENV 3.8 tons /A**





# Fertilized the 2 acres on May 18<sup>th</sup>, 2015

**Mixed Bone char 35 lbs/A with  
1lb/A Boron in a cement mixer**

**Seed Easy PTO broadcast  
spreader(Grander) on tractor**



May 20<sup>th</sup>, 2015

**Disked in the lime and fertilizers**





# Planted using a Brillion Seeder

**Nurse crop oats 1.5 bushels/A  
May 21<sup>st</sup>, 2015**



**Bruce variety: Birdsfoot Trefoil  
(BFT) 17.55 lbs/A**



Planted  $\frac{1}{2}$  of the oats with the brillion seeder while the seed bed was still a little rough, then the remaining oats with  $\frac{1}{2}$  of the BFT seed with the brillion, then the remaining  $\frac{1}{2}$  of the BFT with the brillion -> so went over the field 3 times with a brillion seeder resulting in a firmer (higher seed to soil contact) seed bed on each pass.







# Planting Finished May 2015





# Grazed and hayed nurse crop July 2015

- Grazed oats July 14<sup>th</sup> – 26<sup>th</sup> but goats could not keep up, SO → Hayed 1.5 acres of oats on July 31<sup>st</sup> (52 bales)





# Oat nurse crop and resulting oat hay



# Birdsfoot Trefoil (BFT) Stand Measurements

## July 15<sup>th</sup>, 2015 – some sections weedier than others

Sample	BFT	Other legumes	Forage grasses (oats)	Broadleaf weeds	Grass weeds - sedges/rushes
Lower Field 1	20	6	28	7	20
2	30	4	42	14	5
3	82	4	28	25	1
4	21	3	19	39	4
5	42	2	29	28	1
6		7	33	12	0
Upper Field 1	35	1	5	13	0
2	8	4	26	17	1
3	5	0	30	1	0
4	30	1	2	2	2
5	47	4	8	3	0
6	28	1	3	2	0





# Aug 2015

after grazing and haying the  
oats, the birdsfoot trefoil  
started to take off! It is very  
important not to graze or  
hay it for >1 month before  
the 1<sup>st</sup> killing frost!





# Frost seeded 10 lb. of BFT on 4-2-16

Area 60'x220' in lower 1st acre





On June 6<sup>th</sup>, 2016 mowed the half acre that had not been hayed in 2015 for weed control



Study started June 16<sup>th</sup>, 2016

Sampling was done every two weeks

- FAMACHA scoring
- Fecal sampling for internal parasites
- Forage sampling
- Live weights were taken at the start and end of the grazing trial





**11 Feb/Mar born kids (5 wethers and 6 doelings) were grazed on birdsfoot trefoil. Animals were moved to a new plot ~ every 6 days and supplemented with ¼ lb concentrate/head/day**





Another 10 kids (5 wethers, 5 doelings) were rotated on recently logged woodland. Primary grazing was raspberry and other berries, red oak, red maple and aspens. Also received ¼ lb concentrate/ head/day





# Day 1

## Weigh in, fecals and Identification



June 16<sup>th</sup>, 2016







June 2016



Measuring height of  
paddock before grazing







**Preparing & Moving  
Control group to the  
Woods**







Predator control for the woods group included locking them in shelter at night despite their solar charged electronet perimeter fence, 4 Nite Guard solar predator control lights and wolf urine on rags hanging from branches





# Woods June 2016





# Woods July 2016







**BFT**

**July 2016**











The region experienced a severe drought during the study affecting regrowth in some paddocks



The BFT did grow well at the leaky hose connection for the hose getting water to the BFT goats!



# Birdsfoot Trefoil Pasture Productivity

Date	DM Yield (lbs./acre)	BFT Yield (lbs./acre)	%BFT
6/16/2016	4777	2624	54.9%
7/1/2016	6157	3768	61.2%
7/13/2016	3376	2041	60.5%
8/16/2016* Grazing regrowth from 7/1/2016 paddocks	1222*	1043*	85.3%





# Final Weigh-in





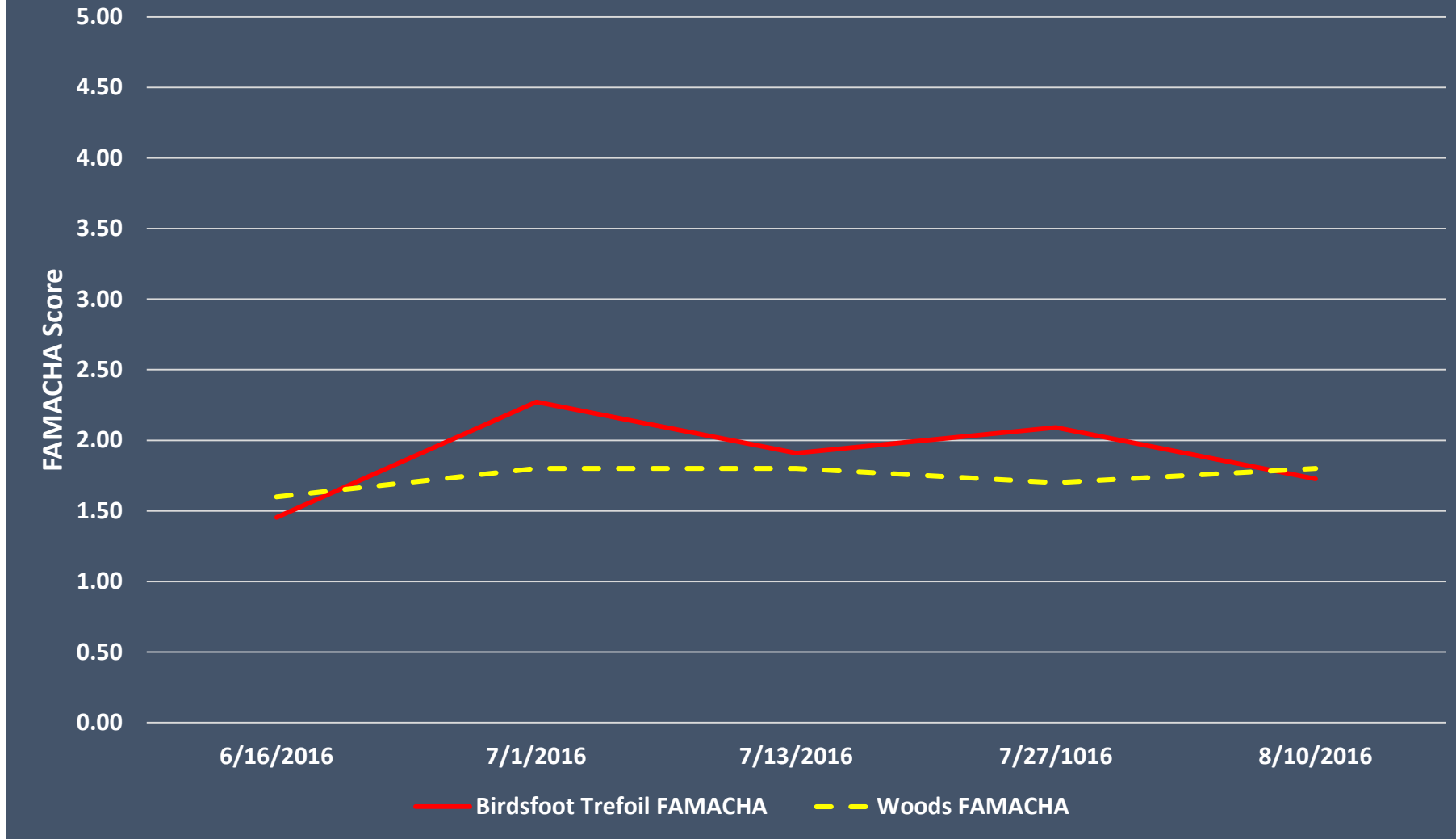
# RESULTS

- Unfortunately, we knew ahead of time we had no strongyle worm infection in the herd.
- **Why was this?**
- 3 years earlier, the herd had been through an isolation program where the foundation does were raised in isolation from any mature does. We assumed that by the time the study started, these does and their offspring would have picked up worms from somewhere but they had not. We thought about infecting the herd with strongyle worms from Texas A&M that had been obtained from antelope and were supposed to be susceptible to all dewormers – BUT... were reluctant to do this.
- THUS the study focused on how well dairy kids could grow on BFT versus woody underbrush with minimal grain supplementation
- Throughout the study we saw no strongyle worms, tapeworms, whipworms or strongyloides in both groups with the exception of 1 whipworm egg in the BFT group on 7/13 and again on 8/10 (different animal) and 1 strongyle egg in the Woods group on 7/13.





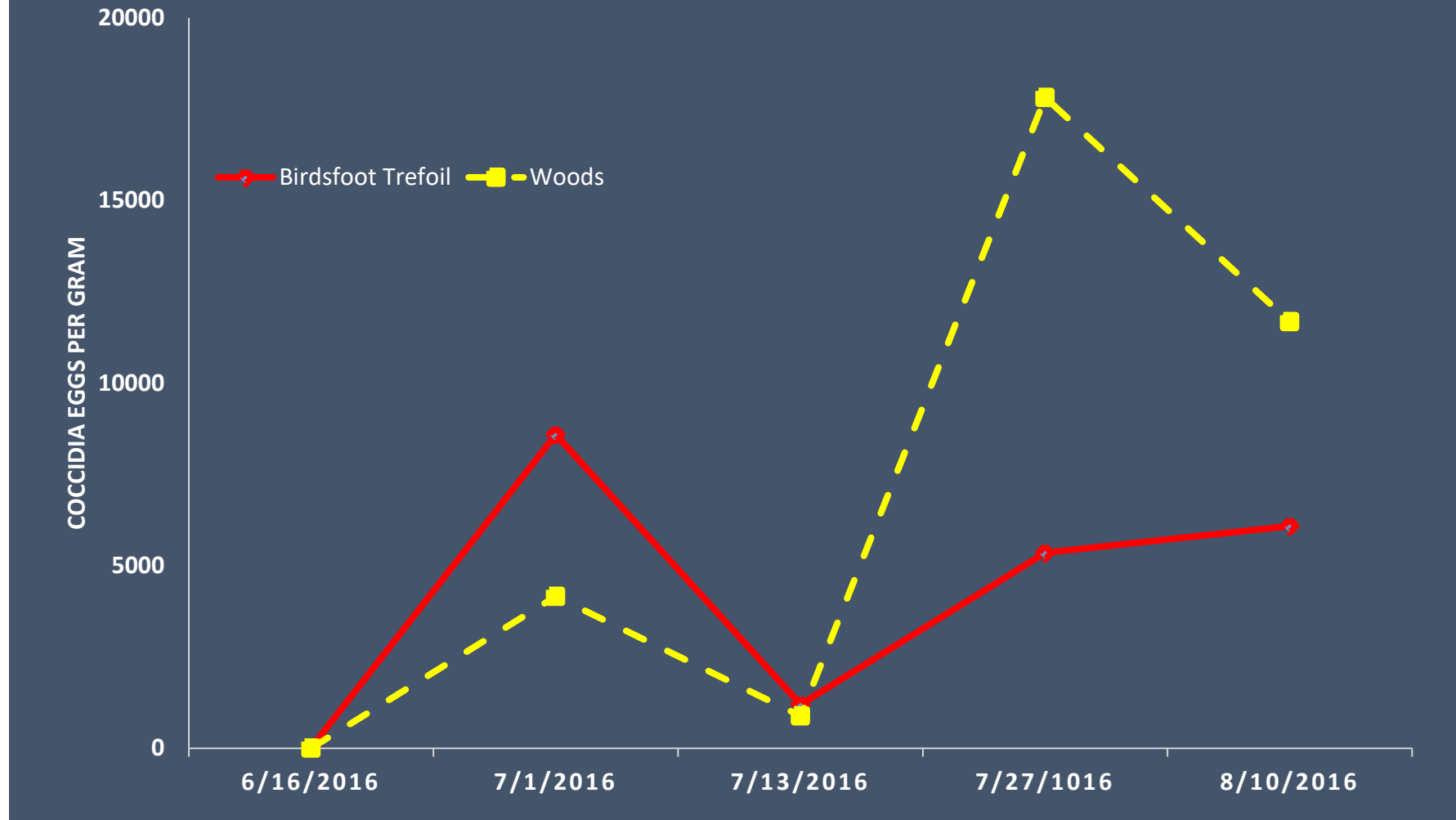
# FAMACHA Score over 55 days by Treatment



**No statistically significant differences between the two forage treatments over time ( $P=0.37$  for forage type and  $P=0.19$  for effect of forage\*days)**



## Change in coccidia eggs per gram (EPG) over 55 days by treatment

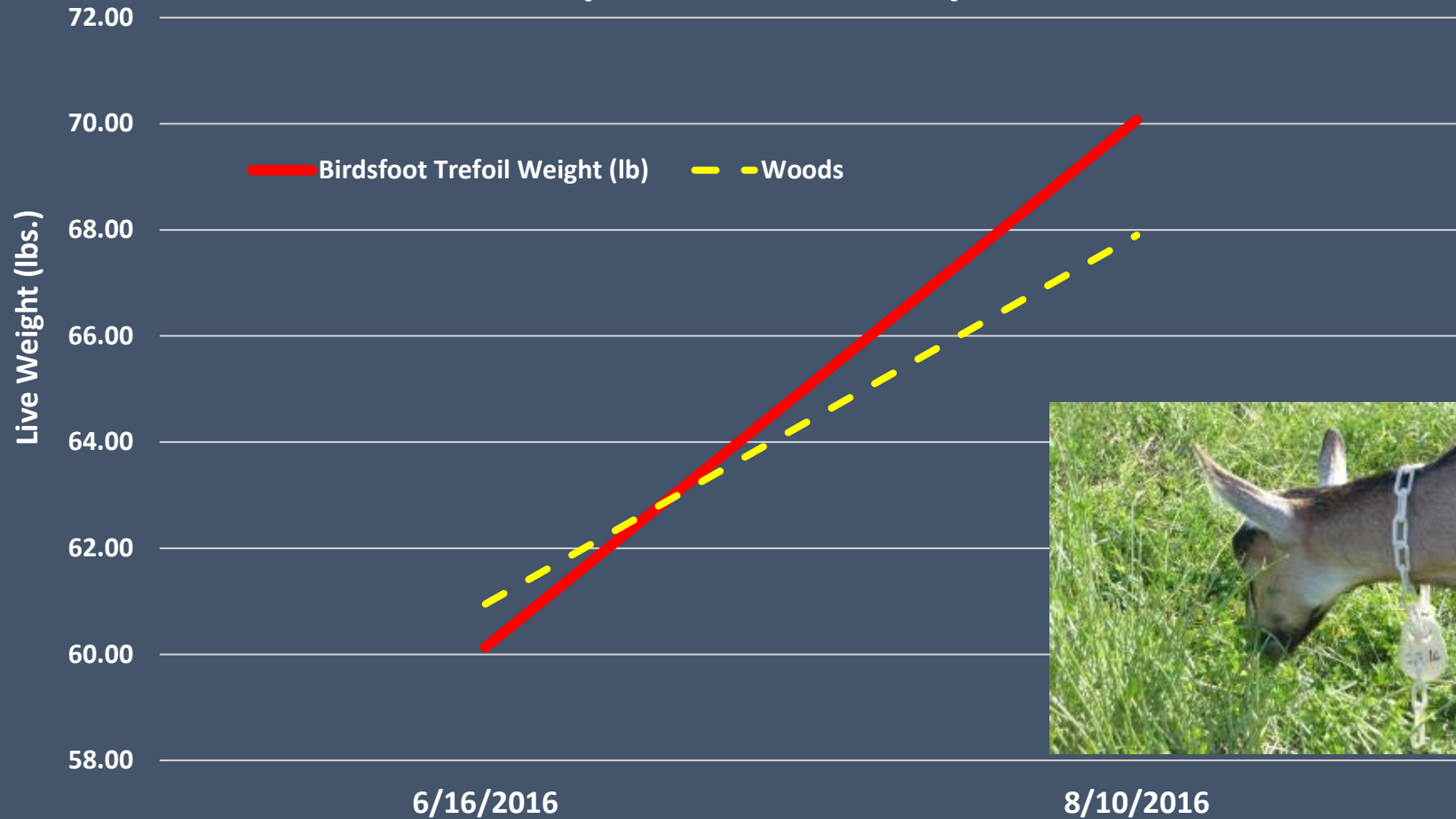


No statistically significant differences between the two forage treatments over time ( $P=0.74$  for forage type and  $P=0.53$  for effect of forage\* days)



# Dairy goat kids grazing either BFT or browse and trees

## Weight Gain over 55 Days by Treatment (P value = 0.008)





# Effect of Pasture Type and Sex on Daily Weight Gain (in lbs.) during 55 d. Grazing Trial

Fitted Term	Mean	SE Mean	P value
<b>Pasture</b>			<b>0.008</b>
BFT	0.1826	0.0130	
Woods	0.1264	0.0135	
<b>Sex</b>			<b>0.010</b>
D	0.1271	0.0130	
W	0.1818	0.0135	
<b>Pasture*Sex</b>			<b>0.511</b>
BFT D	0.1615	0.0175	
BFT W	0.2036	0.0191	
Woods D	0.0927	0.0191	
Woods W	0.1600	0.0191	

So BFT wethers gained around 6 lbs per mo while doelings in the woods gained less than 3 lbs per mo. Would have liked better growth in both groups but particularly in the woods group.





# In Conclusion

- Weight gain was significantly better for the BFT group receiving a token amount of concentrate ( $\frac{1}{4}$  lb./head/day) than for the control group in the underbrush/woods also receiving  $\frac{1}{4}$  lb. concentrate/head/day.
- Weight gain was also significantly better for wethers than doelings.
- BFT wethers gained around 6 lbs per mo, while doelings in the woods gained  $\sim 2.7$  lbs per mo. BFT doelings and Wood wethers gained  $\sim 4.8$  lbs per mo.
- Would have liked better growth in both groups but particularly in the woods group.



# Pasture Walk July 2017







**2017 BFT Stand**



**Sampling on 7/14/2017  
indicated 86.4% BFT as  
a percent of dry matter**







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Questions?

