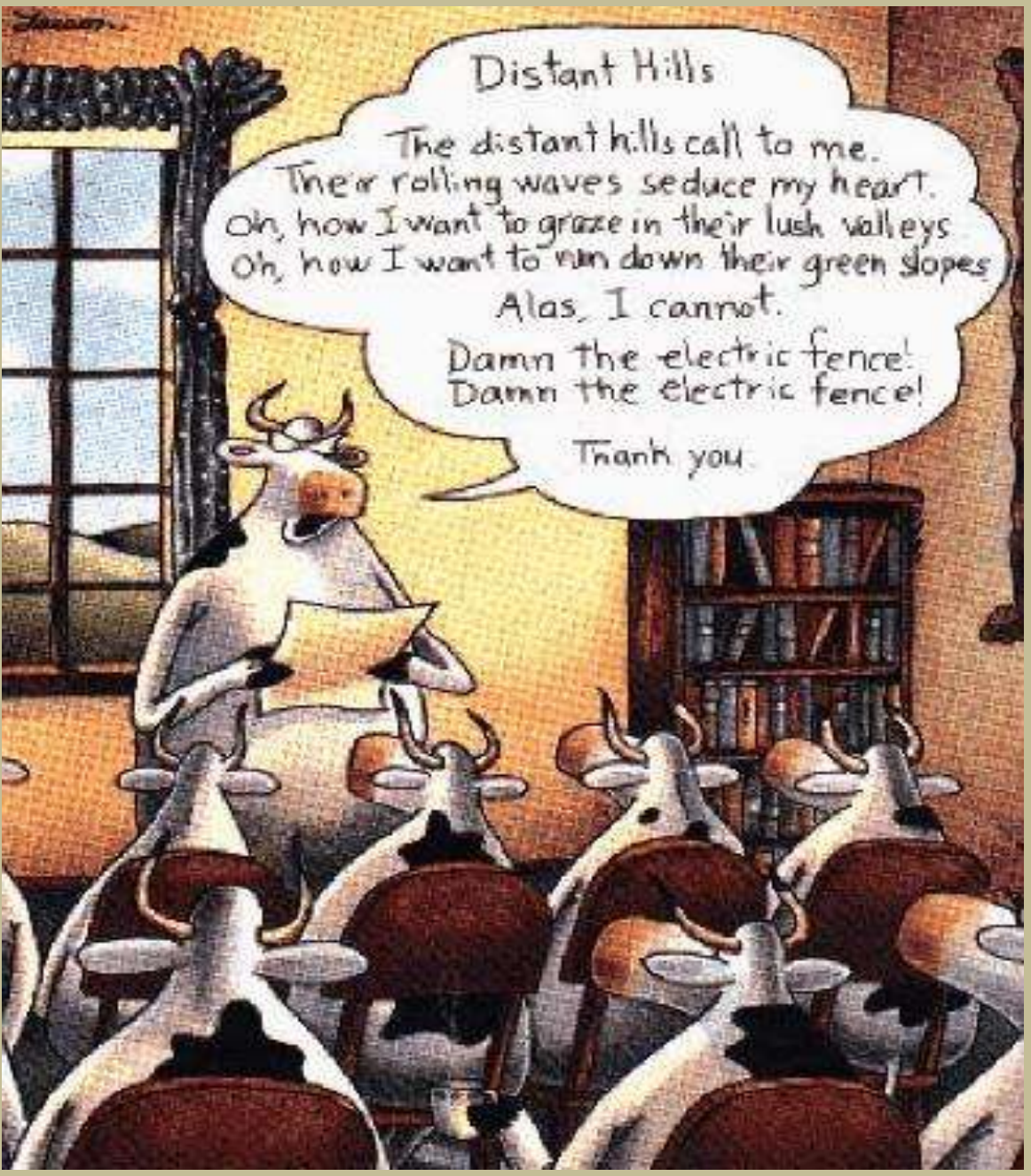
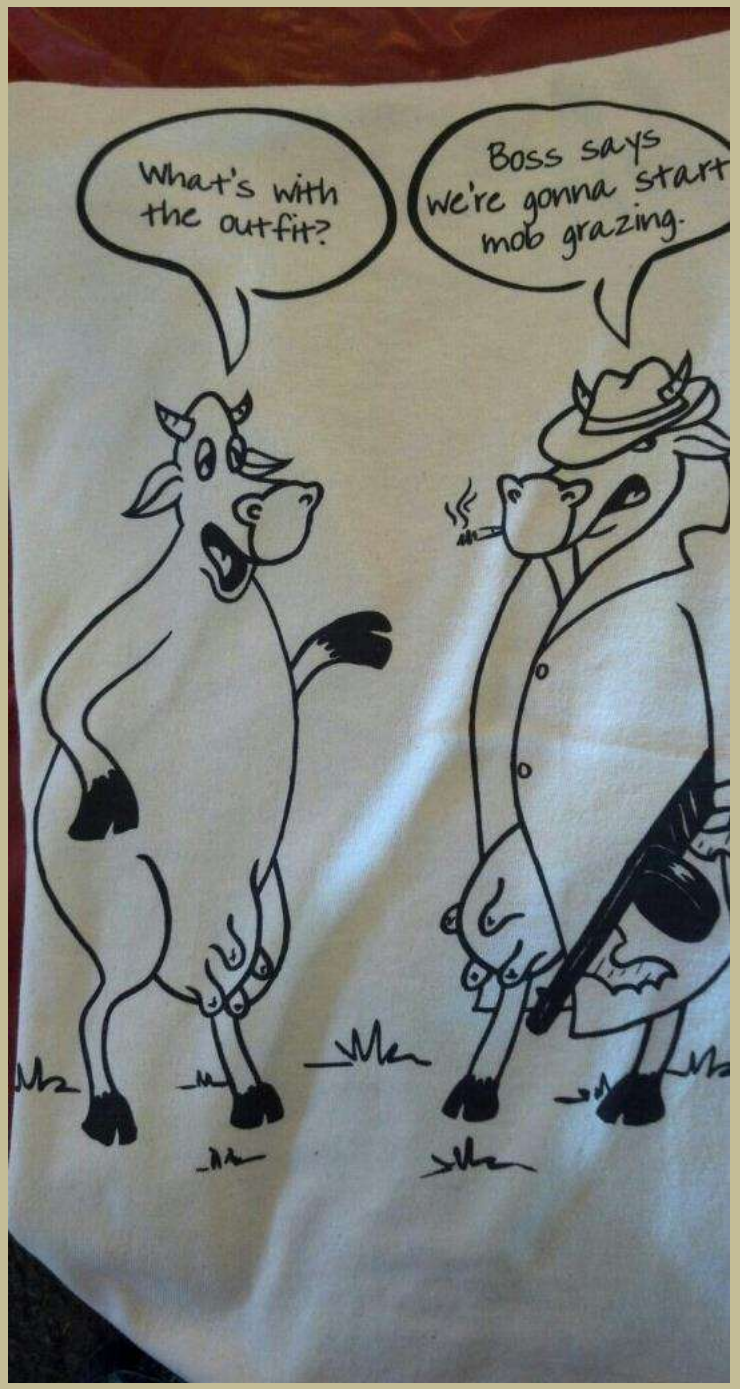
Managing Pastures Towards Improved Profit and Soil Health

2013 Forage & Grazing Management Seminar
Morrisville State College Equine Rehabilitation Center

by
Troy Bishopp
Grass Farmer and Grazing Specialist for the Madison County Soil and Water Conservation District and The Upper Susquehanna Coalition
Troy-Bishopp@verizon.net (315) 824-9849 www.Grasswhisperer.com


Distant Hills
The distant hills call to me.
Their rolling waves seduce my heart.
Oh, how I want to graze in their lush valleys
Oh, how I want to run down their green slopes
Alas, I cannot.
Damn the electric fence!
Damn the electric fence!
Thank you.


What's with the outfit?
Boss says we're gonna start mob grazing.

We Gotta Do a Better Job

Feedlots or pastures?

Pasture Management Does Matter

Take care of your grass and it will take care of you!!


Now this is what
I’m talking about!

GRAZING PLANNING: WHAT ARE YOUR GOALS?

How goal setting relates to me on my farm.

- Think in wholes not in pieces and parts
- I'm always questioning my actions against the goals
- Avoid decisions that can lead to unintended consequences
- Plan and implement towards your goals (Financial, Environmental and Family) not at the expense of any one of them
- Find Balance in life and farm
- Plan for what you want to create and can control
- Improve water retention
- Keep land covered with diverse plant and animal communities
- Focus on soil and biological health
- Improve Fertility Transfer
- Well-managed animals on the land critical for ecosystem to function
- Financial health (pay yourself first)
- Hone in on grazing management tools
- Monitor, Monitor, Monitor

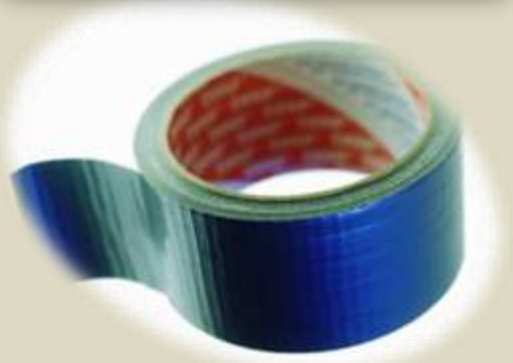
The Initial Questions from the Grass Whisperer

What do you want?
What are the weak links?
Spending too much money?
What kind of horses (animals), nutritional and exercise needs?
Can you limit graze?
How will you manage?
Change orientation and size of sacrifice paddocks?
How much money for fencing infrastructure?
How many horses in the future?
Where does all the manure go?
Grass species selection?

TOOLS TO CREATE WHAT YOU WANT

- Your Mind
- Financial Resources
- Land Capacity
- Infrastructure
- Soil Fertility
- Biological Life
- Plants
- Animals and Impact
- Rest
- Plans
- Maps
- Grazing Strategies
- Equipment
- Time Management
- Etc.

GOALS



RIGHT SIZING

Finding Balance

RIGHT SIZING

Finding Balance

RIGHT SIZING

Can we graze this farm?

Horse Boarding & Riding lesson Operation

17 Animals
-12 Adult Horses
-5 Ponies

25 Acres of hay available for mechanical harvesting at another site

Currently feeding nine 45lb bales a day

Currently about 2-3 acres are "grazed"

Less than 10% of animal forage requirments are met by grazing at this time

10 Acres of land available for grazing, with the possablity of a maximum of 2 more acres available on site.

All animals are housed at barn and sacrifice area during winter months.

Will need water source to paddocks

** The #1 priority for the district at this site is water quality improvements**

Legend

MC Parcels
Streams
Grazing Land Available

N
W E
S

No Plan

No Result

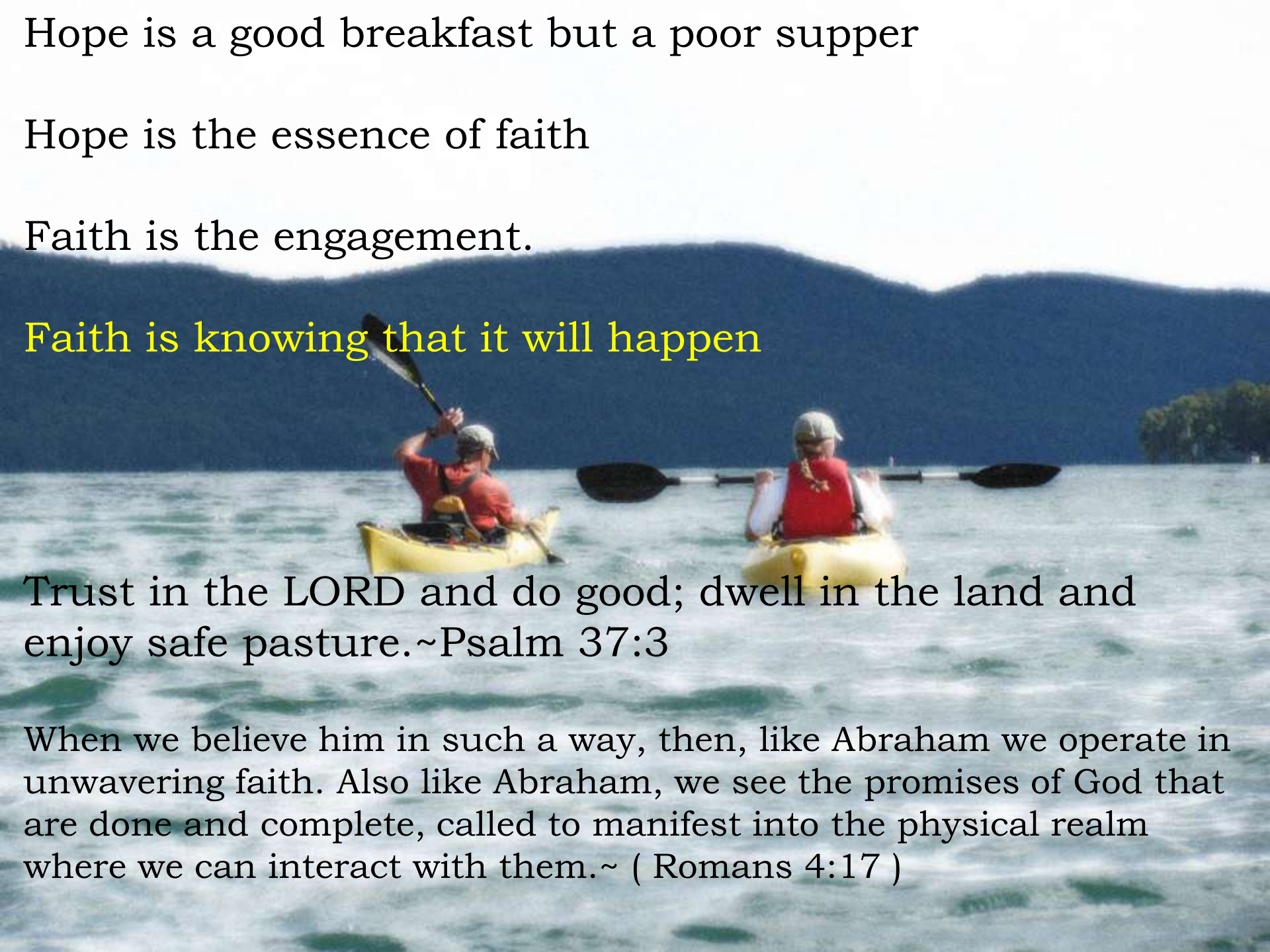
Be a Grazing Thinker

Hope is a good breakfast but a poor supper

Hope is the essence of faith

Faith is the engagement.

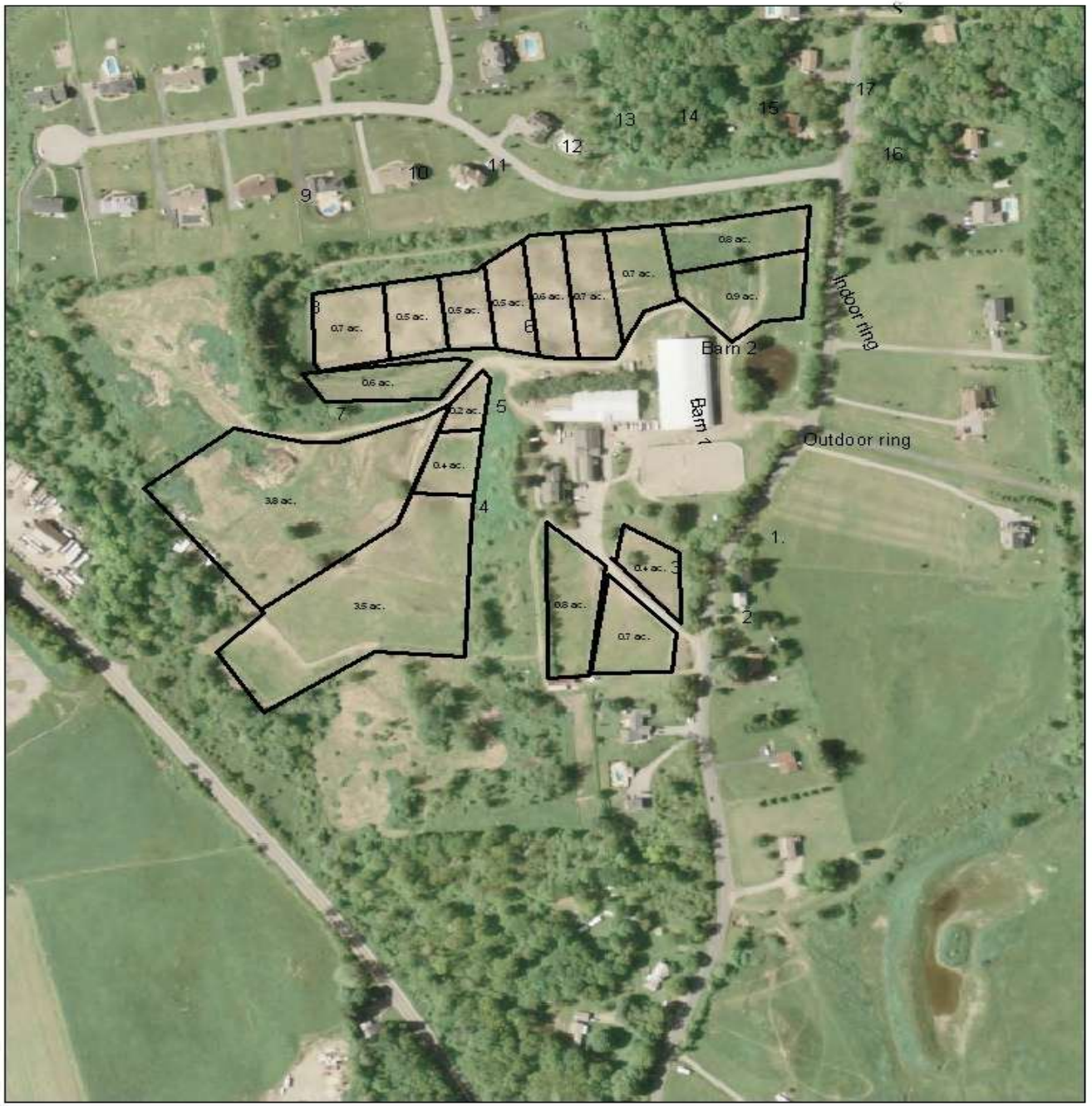
Faith is knowing that it will happen



Trust in the LORD and do good; dwell in the land and enjoy safe pasture.~Psalm 37:3

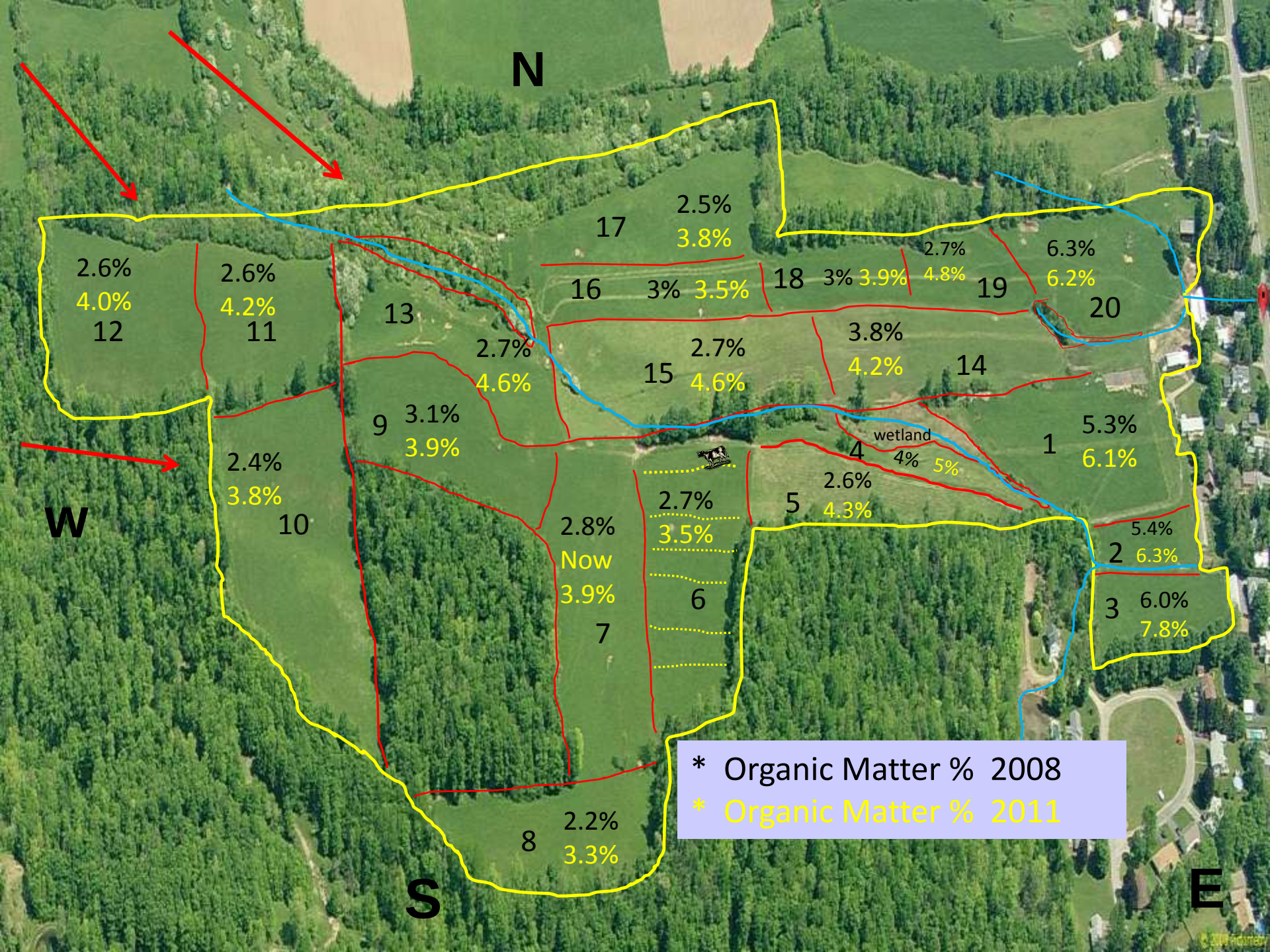
When we believe him in such a way, then, like Abraham we operate in unwavering faith. Also like Abraham, we see the promises of God that are done and complete, called to manifest into the physical realm where we can interact with them.~ (Romans 4:17)

Crosswinds Equestrian Center




NORTH
1507' elelevation
WEST
Chappel Rd
#7
6ac
#6
12.7ac
#10
6ac
#5
7ac
#9
10ac
#8
9ac
Farm Map
Example
#11
10ac
#4
3.9ac
#13
3ac
Pond
Areas (seasonal)
6 acres
#12
12ac
#2
6ac
#1
17ac
#3
5.3ac
Poolville Rd
Farmstead
113 acres
1220'
elevation
Date: 7/21/2011
42°48'36.34" N 75°28'49.49" W elev 1318 ft


Nutrient Levels Average per Paddock
Farm Nutrient map example
Chappel Rd
Poolville Rd
Farmstead
Pond
areas (seasonal) 6 acres
#1
PH- 5.7
OM- 4.5%
P- Medium
K- High
CA- Medium
#2
PH- 5.7
OM- 4.8%
P-Medium
K-High
CA-Low
#3
PH-5.9
OM-4.1%
P-Low
K-High
CA-Medium
#4
PH-5.8
OM-4.8%
P-Low
K-Medium
CA-Medium
#5
PH-5.6
OM-4.5%
P-Low
K-Low
CA-Low
#6
PH-6.0
OM-4.4%
P-Low
K-Low CA-Low
#7
PH-5.7
OM-4.6%
P-Low
K-Medium
CA-Low
#8
PH-5.9%
OM-4.5%
P-Low
K-Low
CA-Medium
#9
PH-5.6
OM-5.3%
P-Low
K-High
CA-Low
#10
PH-5.1
OM-6.7%
P-Low
K-Medium
CA- very low
#11
PH-5.3
OM-6.4%
P-Low
K-High
CA-Low
#12
PH-5.6%
OM-5%
P-Low
K-High
CA-Medium
#13
PH-5.3 OM-5.3%
P-low, K-high, CA-Low
Date: 7/21/2011
42°48'36.34" N 75°28'49.49" W elev 1318 ft


N
W
S
E
2.6%
4.0%
12
2.6%
4.2%
11
13
17
2.5%
3.8%
16
3%
3.5%
18
3%
3.9%
2.7%
4.8%
19
6.3%
6.2%
20
2.7%
4.6%
15
2.7%
4.6%
3.8%
4.2%
14
9
3.1%
3.9%
wetland
4%
5%
4
1
5.3%
6.1%
2.4%
3.8%
10
2.7%
3.5%
5
2.6%
4.3%
5.4%
6.3%
2
2.8%
Now
3.9%
6
7
3
6.0%
7.8%
8
2.2%
3.3%
* Organic Matter % 2008
* Organic Matter % 2011

HAVE YOU SEEN THIS AND DO YOU USE THIS FOR FIGURING??

DRAFT PLAN adapted and modified from *NATURAL RESOURCES CONSERVATION SERVICE*
SYRACUSE, NEW YORK

PRESCRIBED GRAZING MANAGEMENT PLANNING WORKSHEET

LANDOWNERS NAME B Farm DATE 2012

STEP 1a. Estimate the Forage Demand:
The forage demand is the amount of forage dry matter (DM) required to feed a group of livestock for one day. It is calculated based on the rule of thumb that grazing animals require an amount of forage DM equal to about 2.5 to 3.0% of their body weight per day. For lactating animals and growing stock use 3.0% of body weight. For all other classes of livestock use 2.5%.

1	800lb. Organic Heifers Average Weight/Animal	X .025 or .03 =	24 Lbs DM/Head/Day	X	75 # of Animals	=	1800 DM Forage Demand
2	_____	X .025 or .03 =	_____	X	_____	=	_____

Unadjusted Daily Forage Demand _____
Lbs/Dm/Day

Step 1b. Adjust Daily Forage Demand as a result of supplemental feed use by deducting the pounds of supplemental feeds from the daily forage demand.

If supplemental forages are provided, they are substituted on a pound for pound basis. If supplemental grain is fed, the substitution rate is one pound of grain equals .5 pounds of forage.

Unadjusted Daily Forage Demand_____ - Lbs of supplemental feed_____=
Lbs/DM/Day Lbs/DM/Day

Adjusted Daily Forage Demand_____
Lbs/DM/Day

CONTINUED

STEP 2. Estimate the Forage Supply:
This is the amount of forage dry matter that is estimated to be available for grazing after a 20-day growth period in the spring and a 30-day growth period in the summer and fall.

****NOTE**** *These values are for planning purposes only. They reflect average growing conditions, pastures that are in good condition, soil fertility maintained to soil test recommendations and pH not less than 5.8. Unless actual measured yields are available, use estimated yields from NRCS data, New York Agricultural Land Classification data or the Cornell University Forage Species Selection Tool located on the website www.forages.org. Use the following table to convert hay yields in Tons/DM/Acre/Year to Forage Availability in Lbs/DM/Acre/rotation.*

Forage Availability Estimates

Hay Yield Tons/DM/Acre/Year	5.5	5.0	4.5	4.0	3.5	3.0	2.5	2.0
Forage Availability Lbs/DM/Acre/Rotation	2200	2000	1800	1600	1400	1200	1000	800

Soil Map Symbol	1 HE	2	3	4
Number of Acres	1 90	2	3	4
Forage Supply Lbs/DM/Acre/Rotation	1 1400	2	3	4

* Depending on pasture conditions and forage density:

100-150lbs/DM/inch of forage (fair)

200-250lbs/DM/inch of forage (av.)

250-300lbs/DM/inch of forage (good)

300-400lbs/DM/inch of forage (Ex)

Working with the future equine managers

Estimating DM exercise


none


150 DM/in/acre


200-250 DM/in/acre


300+
DM/in
/acre

CONTINUED

Step 3. Select Residency Period:

Residency Period 1 Days

Note** *One half to 1-day residency periods are recommended for lactating dairy cows. Residency periods of 2 to 7 days may be used for all other livestock. To maximize harvest efficiency, use shorter residency periods.*

Step 4. Determine Paddock Size by Major Soil Type:

Paddock size is based on meeting the forage demand of the livestock for the designated residency period.

1	1800	÷	1400	=	1.3 acres	X	1	=	1.3 acres
	Forage Demand		Forage Supply		Acres Required/Day		Residency Period		Paddock Size (Ac)
2		÷		=		X		=	
	Forage Demand		Forage Supply		Acres Required/Day		Residency Period		Paddock Size (Ac)
3		÷		=		X		=	
	Forage Demand		Forage Supply		Acres Required/Day		Residency Period		Paddock Size (Ac)
4		÷		=		X		=	
	Forage Demand		Forage Supply		Acres Required/Day		Residency Period		Paddock Size (Ac)

Step 5. Determine the Number of Paddocks

20 days rest	÷	1	=		+ 1	= 21
		Residency Period				Number of Paddocks
30 days rest	÷		=		+ 1	= 31
		Residency Period				Number of Paddocks
45 days rest	÷		=		+ 1	= 46
		Residency Period				Number of Paddocks
60 days rest	÷		=		+ 1	= 61
		Residency Period				Number of Paddocks
90 days rest	÷		=		+ 1	= 91
		Residency Period				Number of Paddocks

CONTINUED

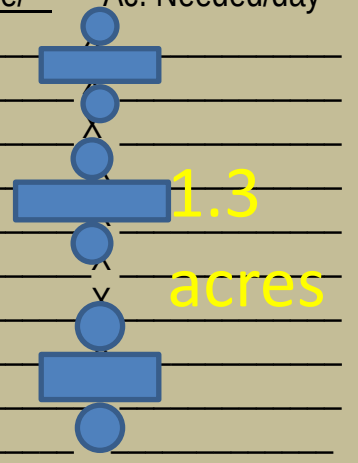
Step 6. Estimate the Total Number of Acres Needed: Use the average paddock size of the most prevalent soil types to estimate

Paddock Size		Number of Paddocks		Acres Needed	
1.3	X	21	=	27	for 20 days rest
1.3	X	31	=	40	for 30 days rest
1.3	X	46	=	60	for 45 days rest
1.3	X	61	=	80	for 60 days rest
1.3	X	91	=	118	for 90 days rest

Note: During spring and early summer, only about 40% to 60% of planned acres will be required for grazing. The remaining grazing acres could be mechanically harvested, planned to be grazed by another class/group of livestock, clipped, deferred for wildlife habitat or stockpiled for extended grazing depending on the goals of the family.

Step 7. Determine the Number of Actual Acres Planned:

	Pad Size/		Ac. Needed/day	=	# Days available
1	3	X	1.3 acres	=	2.3
2	2	X	1.3 acres	=	1.5
3	2	X	1.3 acres	=	1.5
4	5	X	1.3 acres	=	3.5
5	4	X	1.3 acres	=	3
6	5	X	1.3 acres	=	3.5
7	5	X	1.3 acres	=	3.5
8	4	X	1.3 acres	=	3
9	5	X	1.3 acres	=	3.5
10	7	X	1.3 acres	=	5
11	5	X	1.3 acres	=	3.5
12	5	X	1.3 acres	=	3.5
13	5	X	1.3 acres	=	3.5
14	7	X	1.3 acres	=	5
15	5	X	1.3 acres	=	3.5
16	5	X	1.3 acres	=	3.5
17	5	X	1.3 acres	=	3.5
18	5	X	1.3 acres	=	3.5
19	5	X	1.3 acres	=	3.5
20	5	X	1.3 acres	=	3.5



Total actual Acres **94** Total # days rest **67**

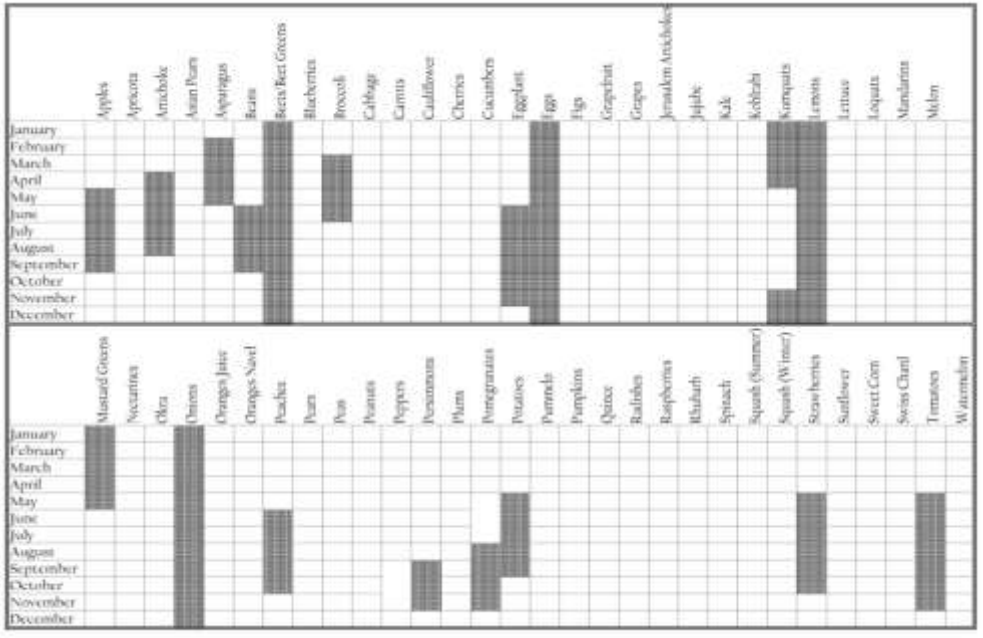
Vegetable growing chart

A useful, at a glance guide showing sowing and harvesting times for most popular vegetables.

Key:

- Sow under cloche, cold frame, or in unheated greenhouse
- Plant out from under glass
- Sow outdoors
- Transplant outdoor sowings
- Harvest period

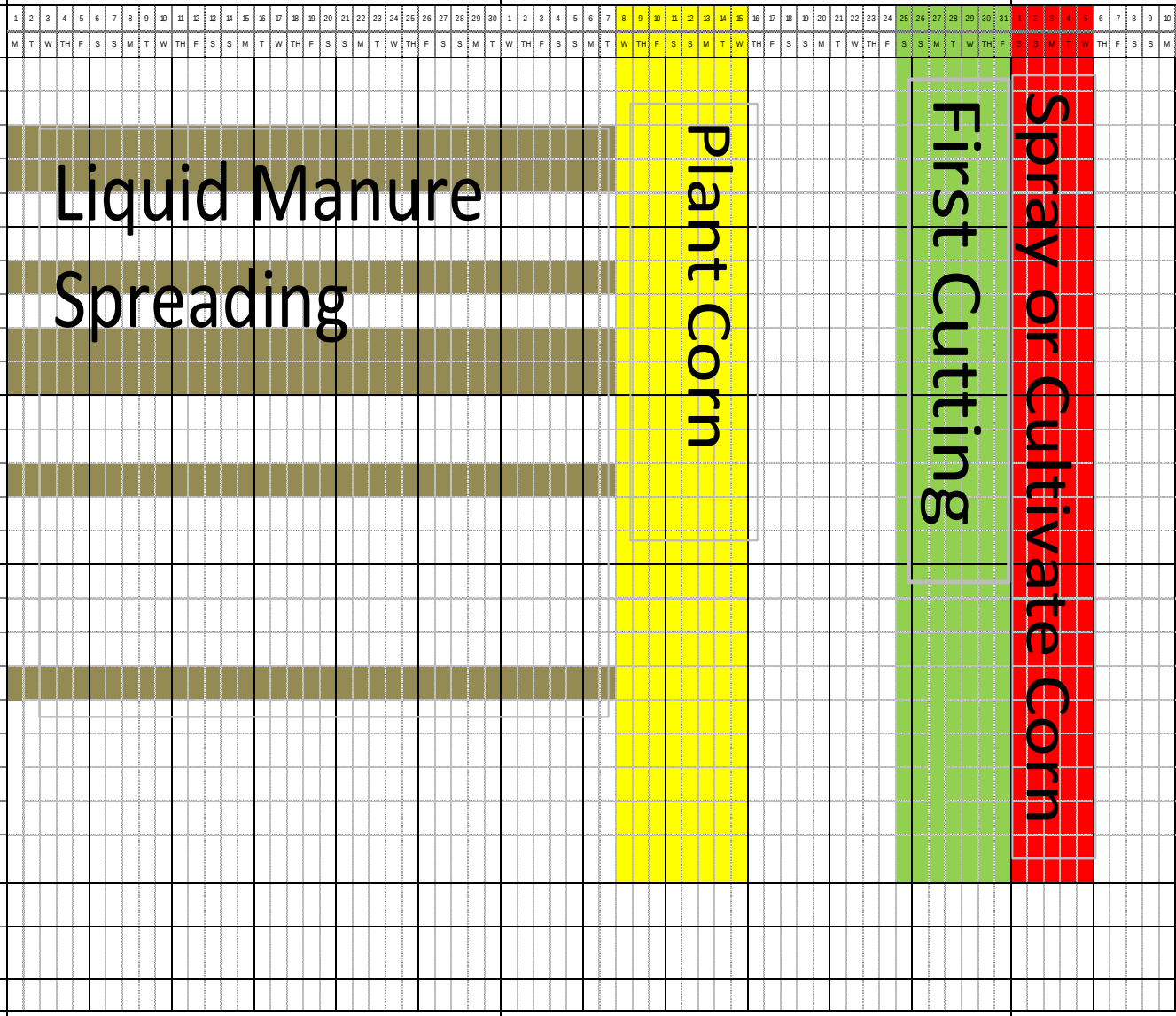
Vegetable	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
Beans - Runner																		
Beans - Dwarf French																		
Beans - Broad																		
Beet																		
Borecole (Curly Kale)																		
Broccoli - Sprouting																		
Brussels Sprouts																		
Cabbage (summer & autumn)																		
Cabbage (spring)																		
Cabbage (winter)																		
Cabbage (savoy)																		
Carrots																		
Cauliflower (summer & autumn)																		
Cauliflower (winter & spring)																		
Celery																		
Leaf Beat (Perpetual Spinach)																		
Leek																		
Lettuce																		
Marrow & Courgette																		
Onion Seed																		
Onion Sets																		
Parsnip																		
Pea																		
Radish																		
Spinach																		
Swede																		
Sweet Corn																		
Turnip																		

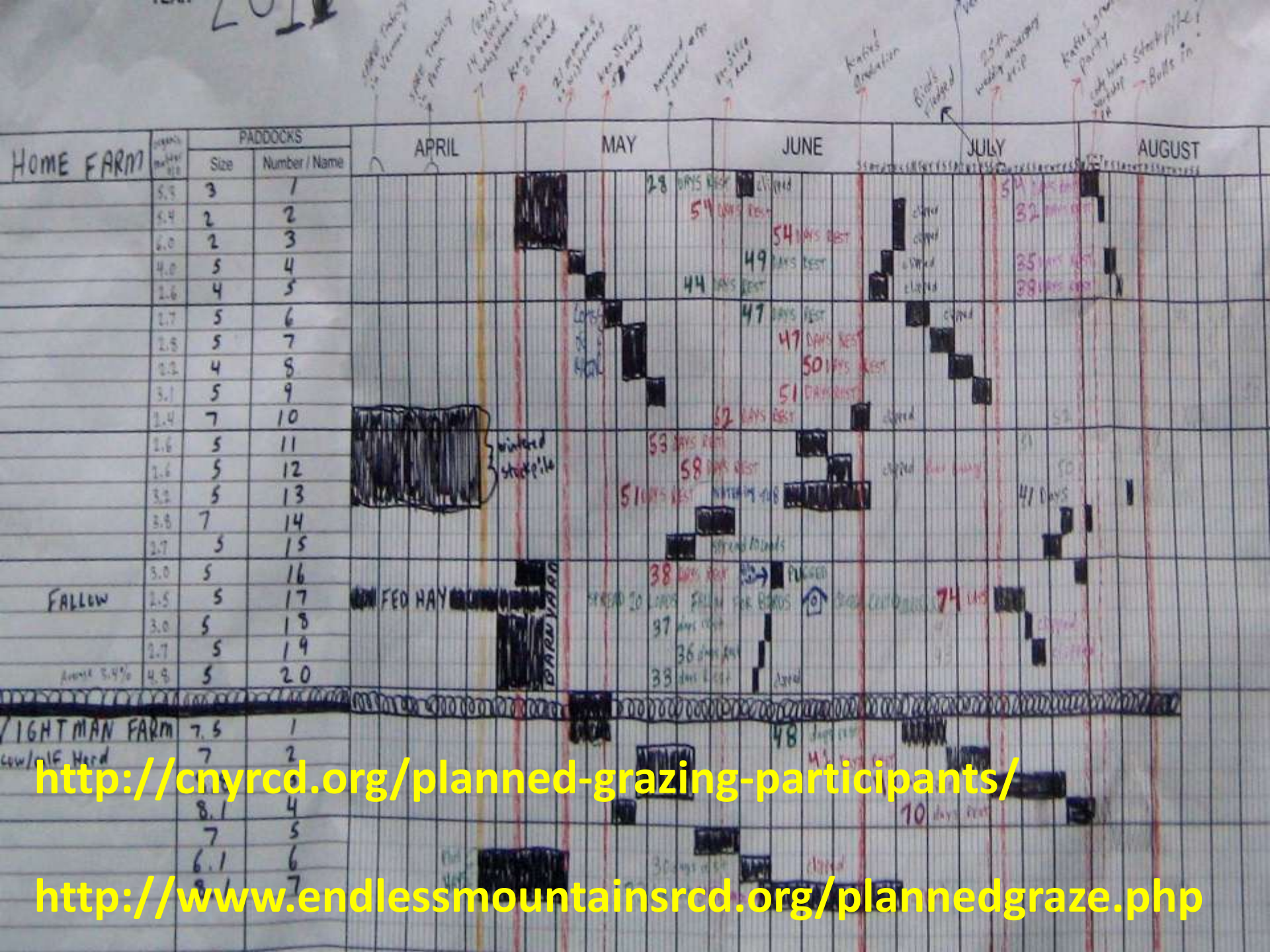


YEAR 2013-2014

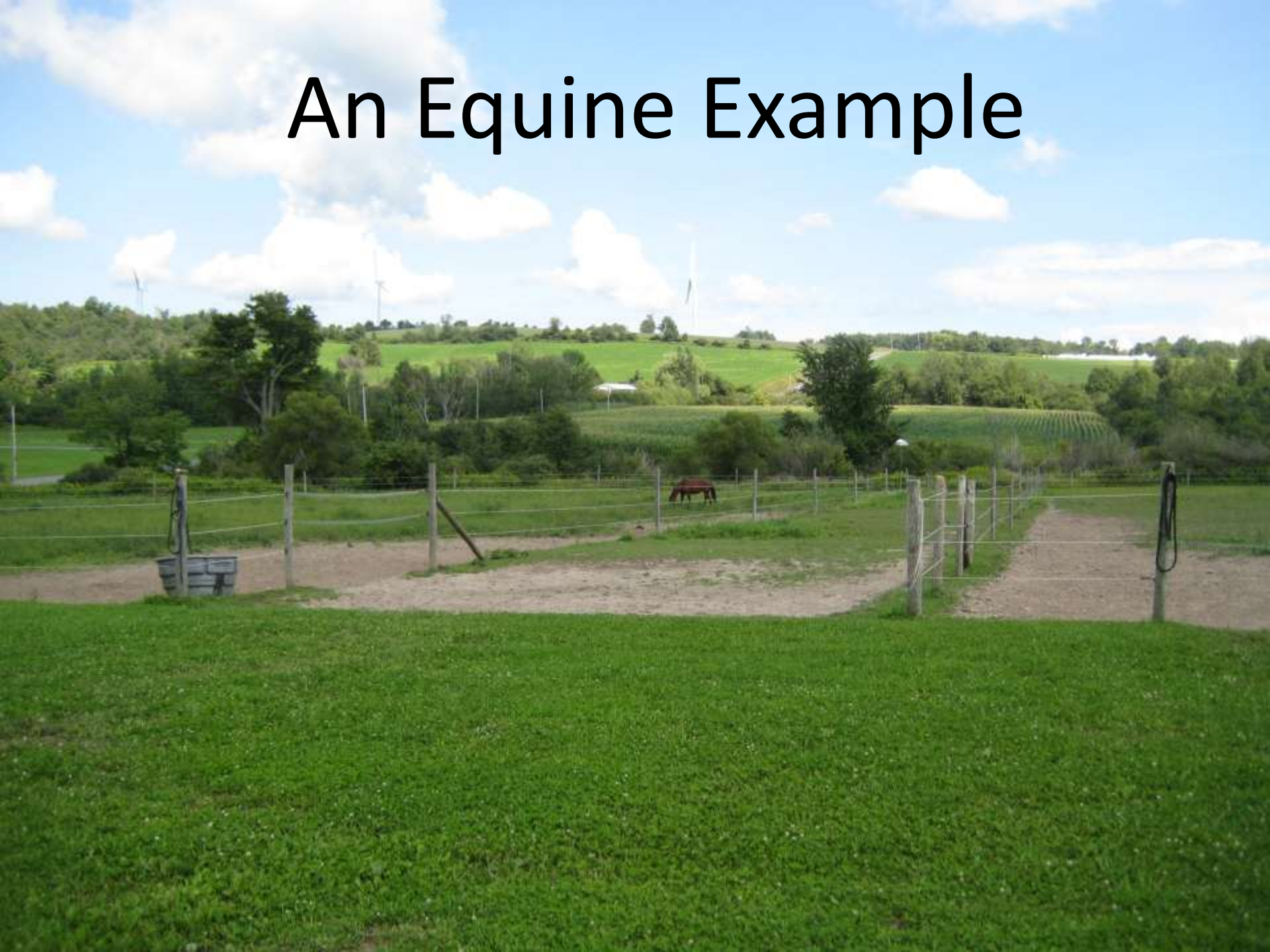
Liverm

manure timing	Crop Fields Size	Name	
November	1.2	Lake Bank	Hay
November	10.5	Gravel Bed	Corn
April	9.1	Camp Road	Corn
Feb-April	7.2	Corner Piece	Corn
November	5.7	Small Square	Corn
November	12.1	Across Gravel Bed	Corn
April	17.9	Across Road	Alf hay
November	18.1	By Jims	Hay
April	6.3	Mom & Dad west	Corn
April	13.7	Mom & Dad east	Corn
November	12.5	Big Piece hill	Oats
November	6.3	Little Piece hill	Corn
April	2.2	By Creek	Rye
November	2.2	Flat Creek	Hay
November	2	Flat End	Corn
November	7.5	Flat Gravel	Corn
November	24.7	Washburn north	Corn
November	22.2	Washburn South	Hay
April	5.1	Bono	Hay
Fall	8	power plant pasture	
Fall	4	Heifer Pasture	
Fall	6	Cow Pasture west	
Fall	9	Cow Pasture east	
		RAINFALL/ in	
		SNOW/ in	
Daily temps			




HOME FARM
PADDOCKS
Size
Number / Name
APRIL
MAY
JUNE
JULY
AUGUST
FALLOW
FED HAY
WINTER STOCKPILE
LIGHTMAN FARM
http://cnyrcd.org/planned-grazing-participants/
http://www.endlessmountainsrcd.org/plannedgraze.php

An Equine Example



Conservation Plan Map

Date: 12/30/2009

Field Office: HAMILTON SERVICE CENTER

NSERVATION DISTRICT

Assisted By: Michael Gurecki

DRAFT PLAN adapted and modified from *NATURAL RESOURCES CONSERVATION SERVICE SYRACUSE, NEW YORK*

PRESCRIBED GRAZING MANAGEMENT PLANNING WORKSHEET

LANDOWNERS NAME_____; _____DATE_____2009_____

STEP 1a. Estimate the Forage Demand:
The forage demand is the amount of forage dry matter (DM) required to feed a group of livestock for one day. It is calculated based on the rule of thumb that grazing animals require an amount of forage DM equal to about 2.5 to 3.0% of their body weight per day. For lactating animals and growing stock use 3.0% of body weight. For all other classes of livestock use 2.5%.

1 ___1300_____ X **5%** = ___65_____ X ___6____ = ___390 DM_____
Average Weight/Animal | Lbs DM/Head/Day | # of Animals | Forage Demand

2_____ X .025 or .03 = _____X _____ = _____

Unadjusted Daily Forage Demand _____
Lbs/Dm/Day

Step 1b. Adjust Daily Forage Demand as a result of supplemental feed use by deducting the pounds of supplemental feeds from the daily forage demand.

If supplemental forages are provided, they are substituted on a pound for pound basis. If supplemental grain is fed, the substitution rate is one pound of grain equals .5 pounds of forage.

Unadjusted Daily Forage Demand_____390_- Lbs of supplemental feed 35 (5lbs hay & 1lb grain/horse)
Lbs/DM/Day | Lbs/DM/Day

Adjusted Daily Forage Demand____355_____
Lbs/DM/Day

STEP 2. Estimate the Forage Supply:
This is the amount of forage dry matter that is estimated to be available for grazing after a 20-day growth period in the spring and a 30-day growth period in the summer and fall.

NOTE *These values are for planning purposes only. They reflect average growing conditions, pastures that are in good condition, soil fertility maintained to soil test recommendations and pH not less than 5.8. Unless actual measured yields are available, use estimated yields from NRCS data, New York Agricultural Land Classification data or the Cornell University Forage Species Selection Tool located on the website www.forages.org. Use the following table to convert hay yields in Tons/DM/Acre/Year to Forage Availability in Lbs/DM/Acre/rotation.*

Forage Availability Estimates

Hay Yield Tons/DM/Acre/Year	5.5	5.0	4.5	4.0	3.5	3.0	2.5	2.0
Forage Availability Lbs/DM/Acre/Rotation	2200	2000	1800	1600	1400	1200	1000	800

Soil Map Symbol	1 HnB	2 1.20	3 AoA	4_____
Number of Acres	1 12.9	2 1.20	3 .80	4_____
Forage Supply Lbs/DM/Acre/Rotation	1 **1000**	2 **1000**	3 **1000**	4_____

* Depending on pasture conditions and forage density:

100-150lbs/DM/inch of forage (fair)

200-250lbs/DM/inch of forage (av.)

250-300lbs/DM/inch of forage (good)

300-400lbs/DM/inch of forage (Ex)

Step 3. Select Residency Period:

Residency Period___3___
Days

Step 4. Determine Paddock Size by Major Soil Type:
Paddock size is based on meeting the forage demand of the livestock for the designated residency period.

1 __**355**_____ ÷ **1000**_____ = ___**.35**_____ X ____**3**__ = __**1.2 acres**_____
Forage Demand | Forage Supply | Acres Required/Day | Residency Period | Paddock Size (Ac)

2 _**355**_____ ÷ __**1000**_____ = _____X _____3_____ = _____
Forage Demand | Forage Supply | Acres Required/Day | Residency Period | Paddock Size (Ac)

3 __**355**_____ ÷ _**1000**_____ = _____X _____3_____ = _____
Forage Demand | Forage Supply | Acres Required/Day | Residency Period | Paddock Size (Ac)

4_____ ÷ _____ = _____X _____ = _____
Forage Demand | Forage Supply | Acres Required/Day | Residency Period | Paddock Size (Ac)

Step 5. Determine the Number of Paddocks

20 days rest ÷ _____3_____ = _____7____ + 1 = _____8_____
Residency Period | Number of Paddocks

30 days rest ÷ _____3_____ = ____10_____ + 1 = ___11_____
Residency Period | Number of Paddocks

Step 6. Estimate the Total Number of Acres Needed: Use the average paddock size of the most prevalent soil types to estimate

___1.2_____X_____8_____ = ___9.6_____
Paddock Size | Number of Paddocks | Acres Needed for 20 days rest

___1.2_____X_____11_____ = __13.2_____
Paddock Size | Number of Paddocks | Acres Needed for 30 days rest

Note: During spring and early summer, only about 40% to 60% of planned acres will be required for grazing. The remaining grazing acres could be mechanically harvested, planned to be grazed by another class/group of livestock, clipped, deferred for wildlife habitat or stockpiled for extended grazing depending on the goals of the family.

Step 7. Determine the Number of Actual Acres Planned:

Pad Size/	Ac. Needed/day		# Days available
1 ___1.1_____	÷ _1.2_____	=	____3____
2 ___1.5_____	÷ __1.2_____	=	____3____
3 __5.9_____	÷ __1.2_____	=	_____15____
4 _4.2_____	÷ __1.2_____	=	___10.5____
5 __3.6_____	÷ _1.2_____	=	___9_____
6 __3.6_____	÷ _1.2_____	=	___9_____
7_____	÷ _____	=	_____
8_____	÷ _____	=	_____
9_____	÷ _____	=	_____
10_____	÷ _____	=	_____

11_____	÷ _____	=	_____
12_____	÷ _____	=	_____
13_____	÷ _____	=	_____
14_____	÷_____	=	_____
15_____	÷_____	=	_____
16_____	÷_____	=	_____
17_____	÷_____	=	_____
18_____	÷_____	=	_____
19_____	÷_____	=	_____
20_____	÷_____	=	_____

Total actual Acres__**19.9**_acres____ Total # days rest __49 days_____

MADISON COUNTY SOIL & WATER CONSERVATION DISTRICT
USDA Service Center, 6503 Wes Road, Hamilton, NY 13346
Telephone: 315-824-9849
Fax: 315-824-9629

Big Paddock

/

2160'

Fence Estimate

6 Acre piece - 3 rolls HT wire	315
72 line posts	180
24 End Brace posts	60
12 8' Treated Brace rails	120
12 Quick Brace (keenove) + tension Tool	100
16 strainers	56
32 wrap around ends	35
insulators 1¾" staples,	50
25 Brace pins long + short each	38
2 bottles crimps	36
gates ??	990

Soil & Water Conservation With Local Initiative


HITTER


A Year after
the plan


2 years after
the plan
© 2012 Google


What Do you think?
© 2012 Google
Google earth
Imagery Date: 6/2/2011
42°58'02.15" N 75°46'30.95" W elev 1542 ft
Eye alt 1851 ft


2009.03.25


2009.03.25


2009.03.25

?

OVERGRAZING DANGER!

- **Overgrazing is not just grazing a plant severely!**
- **Overgrazing happens when a plant that is growing from carbohydrate reserves is grazed. "Grazing the roots."**
- **Overgrazing happens when we stay too long, come back too soon and……..**
- ***Graze too soon after dormancy.***


4/19/2012


5/26/2012


7/23/2012


9/10/2012


11/6/2012

Dairy One

FORAGE TESTING LABORATORY
DAIRY ONE, INC.
730 WARREN ROAD
ITHACA, NEW YORK 14850
607-257-1272 (fax 607-257-1350)

Sampled	Recvd	Printed	ST	CO
	04/04/11	04/11/11		

STOCK PILED GRASS FIELD 10
TROY BISHOPP
2809 RT 12-B
DEANSBORO, NY 13328

ENERGY TABLE - NRC 2001

	Mcal/Lb	Mcal/Kg
DE, 1X	1.17	2.58
ME, 1X	0.98	2.16
NEL, 3X	0.55	1.21
NEM, 3X	0.57	1.26
NEG, 3X	0.31	0.69
TDN1X, %	58	

COMMENTS:
1. THIS SAMPLE WAS TESTED TWICE FOR PHOSPHORUS TO CONFIRM THE VALUE LISTED.

Sample Description	Farm	Code	Sample
MMG PASTURE		012	16436790

Analysis Results

Components	As Fed	DM
% Moisture	48.3	
% Dry Matter	51.7	
% Crude Protein	7.2	13.9
% Available Protein	6.1	11.8
% ADICP	1.1	2.2
% Adjusted Crude Protein	6.6	12.8
Soluble Protein % CP		36
Degradable Protein %CP		64
% NDICP	2.3	4.4
% Acid Detergent Fiber	17.9	34.7
% Neutral Detergent Fiber	33.1	64.1
% Lignin	2.5	4.9
% NFC	8.0	15.5
% Starch	1.4	2.7
% WSC (Water Sol. Carbs.)	4.3	8.4
% ESC (Simple Sugars)	4.2	8.2
% Crude Fat	1.6	3.0
% Ash	4.07	7.86
% TDN	30	58
NEL, Mcal/Lb	.26	.50
NEM, Mcal/Lb	.27	.52
NEG, Mcal/Lb	.14	.26
Relative Feed Value		90
% Calcium	.30	.57
% Phosphorus	.07	.14
% Magnesium	.10	.19
% Potassium	.61	1.18
% Sodium	.011	.022
PPM Iron	335	648
PPM Zinc	12	24
PPM Copper	5	9
PPM Manganese	115	223
PPM Molybdenum	.4	.8
% Sulfur	.22	.43
% Chloride Ion	.28	.54
% Lysine	.28	.54
% Methionine	.10	.19
Horse DE, Mcal/Lb	.47	.91

6-27


Burdock, quackgrass, plantain, Stinging
nettle, milkweed, smartweed, prickly pear
orchardgrass, Engelmann leaves + flowers
red clover, white clover, dutch clover, ladino
ragweed, alfalfa, vetch, Bluegrass
goldenrod, bishop's weed, wild carrot
mint, thistle, chicory, dandelion

Dairy One

FORAGE TESTING LABORATORY
DAIRY ONE, INC.
730 WARREN ROAD
ITHACA, NEW YORK 14850
607-257-1272 (fax 607-257-1350)

Sampled	Recvd	Printed	ST	CO
	06/29/11	07/01/11		

FIELD 3 NATIVE PASTURE
TROY BISHOPP
2809 RT 12-B
DEANSBORO, NY 13328

ENERGY TABLE - NRC 2001

	Mcal/Lb	Mcal/Kg
DE, 1X	1.40	3.09
ME, 1X	1.21	2.67
NEL, 3X	0.70	1.55
NEM, 3X	0.74	1.63
NEG, 3X	0.47	1.03
TDN1X, %	67	

Sample Description	Farm	Code	Sample
MMG PASTURE		012	16719920

Analysis Results

Components	As Fed	DM
% Moisture	76.1	
% Dry Matter	23.9	
% Crude Protein	5.4	22.5
% Available Protein	4.9	20.5
% ADICP	.5	2.0
% Adjusted Crude Protein	5.2	21.5
Soluble Protein % CP		37
Degradable Protein %CP		71
% NDICP	1.8	7.7
% Acid Detergent Fiber	6.0	25.2
% Neutral Detergent Fiber	9.0	37.6
% Lignin	1.4	6.0
% NFC	8.7	36.2
% Starch	2.0	8.5
% WSC (Water Sol. Carbs.)	2.1	8.8
% ESC (Simple Sugars)	2.6	10.8
% Crude Fat	.9	3.9
% Ash	1.80	7.54
% TDN	16	67
NEL, Mcal/Lb	.17	.71
NEM, Mcal/Lb	.17	.69
NEG, Mcal/Lb	.10	.42
Relative Feed Value		171
% Calcium	.27	1.11
% Phosphorus	.08	.35
% Magnesium	.08	.35
% Potassium	.52	2.16
% Sodium	.004	.016
PPM Iron	36	148
PPM Zinc	7	28
PPM Copper	2	10
PPM Manganese	8	32
PPM Molybdenum	.6	2.4
% Sulfur	.06	.23
% Chloride Ion	.02	.10
% Lysine	.21	.88
% Methionine	.07	.31
Horse DE, Mcal/Lb	.29	1.21

November 30th

Dairy One

FORAGE TESTING LABORATORY
DAIRY ONE, INC.
730 WARREN ROAD
ITHACA, NEW YORK 14850
607-257-1272 (fax 607-257-1350)

Sampled	Recvd	Printed	ST	CO
	12/01/10	12/03/10		

FIELD #7 SAMPLE 11/30/10
TROY BISHOPP
2809 RT 12-B
DEANSBORO, NY 13328

ENERGY TABLE - NRC 2001

	Mcal/Lb	Mcal/Kg
DE, 1X	1.25	2.75
ME, 1X	1.06	2.33
NEL, 3X	0.60	1.33
NEM, 3X	0.63	1.39
NEG, 3X	0.37	0.81
TDN1X, %	61	

COMMENTS:
1. PLEASE CHECK OUR CURRENT PRICE LIST AND ENCLOSE $2.00 WITH YOUR NEXT SAMPLE TO COVER UNPAID CHARGES ON THIS SAMPLE.

FORAGE LAB HOLIDAY CLOSINGS
NOVEMBER 25TH AND 26TH
DECEMBER 24TH

Sample Description	Farm	Code	Sample
FR MMG FORAGE		202	16018160

Analysis Results

Components	As Fed	DM
% Moisture	58.8	
% Dry Matter	41.2	
% Crude Protein	6.3	15.2
% Available Protein	5.7	13.9
% ADICP	.5	1.3
% Adjusted Crude Protein	6.3	15.2
Soluble Protein % CP		38
Degradable Protein %CP		65
% NDICP	1.9	4.6
% Acid Detergent Fiber	13.0	31.5
% Neutral Detergent Fiber	23.8	57.6
% Lignin	1.9	4.7
% NFC	7.9	19.2
% Starch	1.7	4.1
% WSC (Water Sol. Carbs.)	4.5	10.8
% ESC (Simple Sugars)	3.5	8.5
% Crude Fat	1.6	3.9
% Ash	3.57	8.66
% TDN	25	61
NEL, Mcal/Lb	.24	.57
NEM, Mcal/Lb	.24	.58
NEG, Mcal/Lb	.13	.32
Relative Feed Value		104
% Calcium	.33	.80
% Phosphorus	.09	.22
% Magnesium	.08	.21
% Potassium	.62	1.50
% Sodium	.006	.014
PPM Iron	131	317
PPM Zinc	12	29
PPM Copper	3	8
PPM Manganese	61	149
PPM Molybdenum	.4	.9
% Sulfur	.11	.27
% Chloride Ion	.12	.28
% Lysine	.24	.59
% Methionine	.09	.21
Horse DE, Mcal/Lb	.40	.98

Page 1

Run: 12/3/2010 2:41:47PM Report 1C Page 1

Why Biological Monitor??

Moving towards your goals

To see if your management is working

Check the 4 ecosystem processes
-Water Cycle
-Mineral Cycle
-Energy Flow
-Community Dynamics

Pick up on subtle changes and trends

Helps with financial, animal & crop performance decisions

Establishes baseline data

Practicality in use

Cause its FUN

It's a Party

Pasture Monitoring

Farm Bishopp Farm | Field 1,2,3 behind house | Transect # & Description | Date

	At Dart Entry Point						6" Circle Around Point											Describe Nearest Perennial																		
	What Dart Hit: Must Check One					✓	Soil Surface: Must Check One					Evidence of: "Yes" Check if						What It Is? Must check One						Soil Habitat			Plant Age				Plant Condition				Plant Species if Known
Throw #	Bare Soil	Litter 1 (laying on ground)	Litter 2 (litter looks like soil)	Rock	Plant	Canopy (shading by tall plants)	Mature Capping (moss)	Immature Capping	Recent Capping	Broken Surface	Covered Surface	earthworm activity	Insect (spider,beetle,etc)	Animals (hoof action)	Manure within 3'	Manure within 6'	Annuals Present	Erosion (splash points, rills)	Grass	Legume	Broadleaf (forb)	Sedge or Reed	MOSS	woody plant	Dry	Middle	Wet	Seedling	Young	Mature	Decadent	Resprout	Normal	Over-grazed	Over-rested	Dying/Dead	
1					1	1					1	1	1		1					1								1								wh/clover
2					1	1					1	1		1	1						1							1								plantain
3		1				1					1	1				1				1								1								red clover
4					1	1					1	1		1		1				1								1								red clover
5			1			1					1	1	1		1	1			1								1								orchard
6					1	1					1	1	1		1					1								1								wh/clover
7					1	1					1	1	1		1				1										1						orchard
8		1									1	1	1	1	1						1							1								dandelion
9		1				1					1	1	1			1			1										1						orchard
10					1	1					1	1	1		1					1								1								red clover
11					1	1					1	1			1	1				1								1								red clover
12		1				1					1	1	1		1					1							1									wh/clover
13					1						1	1		1		1			1								1									ryegrass
14					1						1	1		1	1					1							1									wh/clover
15			1								1	1	1	1					1									1								timothy
16		1									1	1			1	1			1									1								orchard
17					1						1	1			1	1					1								1							knapweed
18		1									1	1							1									1								orchard
19		1									1	1			1				1								1									ryegrass
20			1								1	1		1							1						1									bedstraw
21		1									1	1			1	1			1								1									ryegrass
22					1						1	1	1	1					1										1							orchard
23					1						1	1				1			1											1						orchard
24			1								1	1		1						1							1									clover
25	1									1		1							1								1									orchard
Totals																																				
	1	8	4	0	12		0	0	0	1	24	25	10	9	14	10	0	0	12	9	4	0	0		0	0	0	9	11	4	1	0	0	0	0	0	
Percent																																				
	4%	32%	16%	0%	48%	0%	0%	0%	0%	4%	96%	###	40%	36%	56%	40%	0%	0%	48%	36%	16%	0%	0%	0%	0%	0%	0%	36%	44%	16%	4%	0%	0%	0%	0%	0%	

COMMENTS:

Soil Surface is the Key


MOSS


25 worms/sq. ft.
=100 tons
castings
acre/year
1 worm lifetime
(7 years) =
1.2 million
offspring


Litter 1


Litter 2


The Weaver Example
2009


2010


2011

Nathan Weaver Biological Monitoring % around dart point 2009-2011

CARY FIELD	2009	2010	2011
Bare soil	44%	16%	8%
Litter 1	16%	36%	8%
Litter 2	4%	0	8%
Plant	32%	48%	76%
Capping	8%	12%	0
Broken Surface	68%	12%	16%
Covered Surface	24%	76%	84%
Earthworms	84%	96%	100%
Insects	8%	56%	75%
Animals (hoof action)	8%	16%	16%
Manure w/3’	8%	40%	25%
Manure w/6’	0	0	50%
Grass	20%	32%	42%
Legume	16%	16%	16%
Forbs	64%	48%	42%
Sedge	0	4%	0
Moss	0	0	0
Seedling	20%	36%	25%
Young	28%	44%	50%
Mature	12%	12%	25%
Decadent	20%	8%	0
Resprout