PLANNED GRAZING

A Manitoba Perspective

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Livestock Farm Production Extension

Primary Agriculture Branch

Manitoba Agriculture

Dauphin, MB

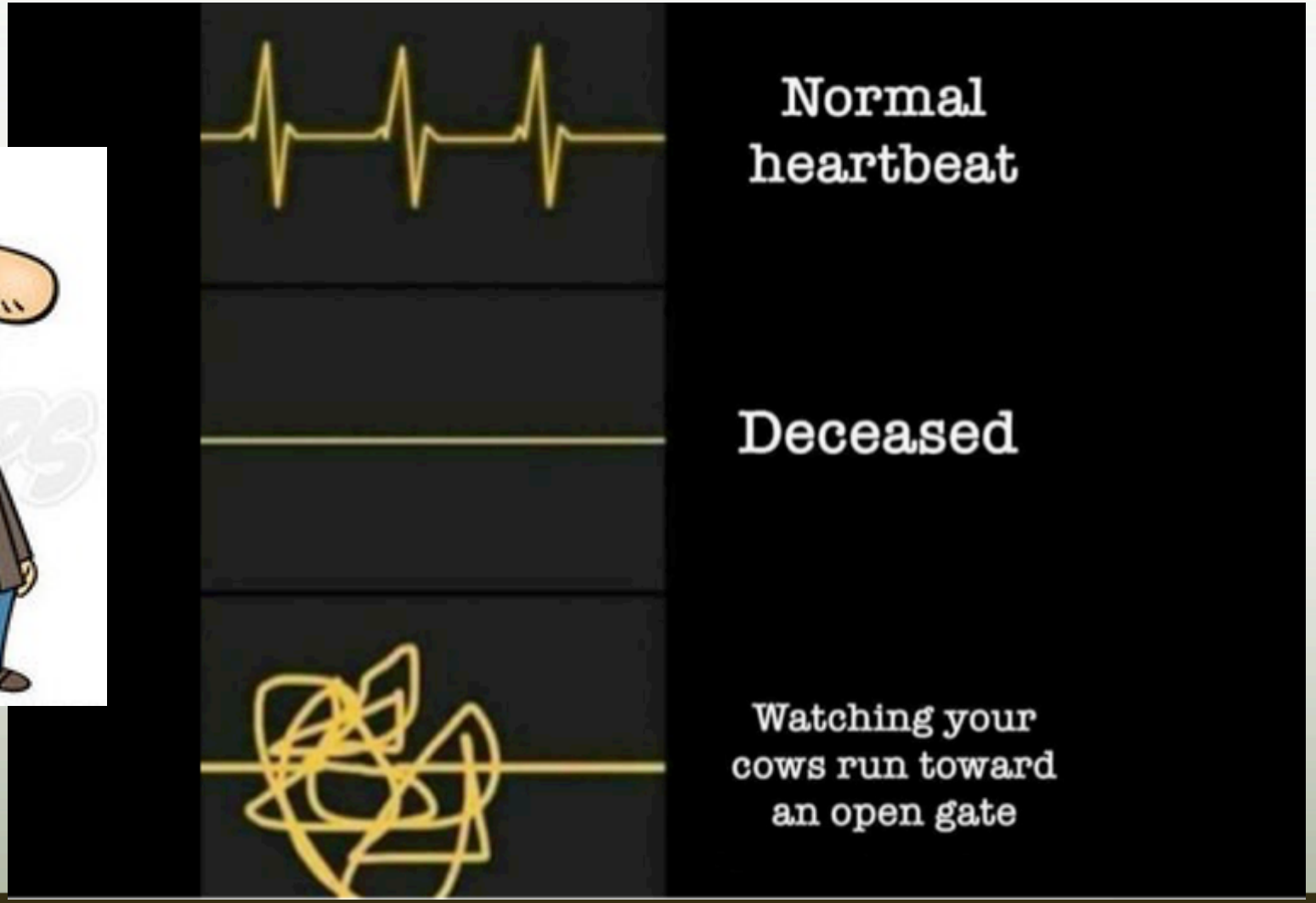
Background – Why are we doing this?

- Long term ecosystem health and profitability are the goals of most conservation orientated ranchers and farmers
- Grazing management has to be adaptive, goal orientated framework using basic knowledge of plant and animal physiology
- Graze more of the whole landscape and graze a wider variety of plant species

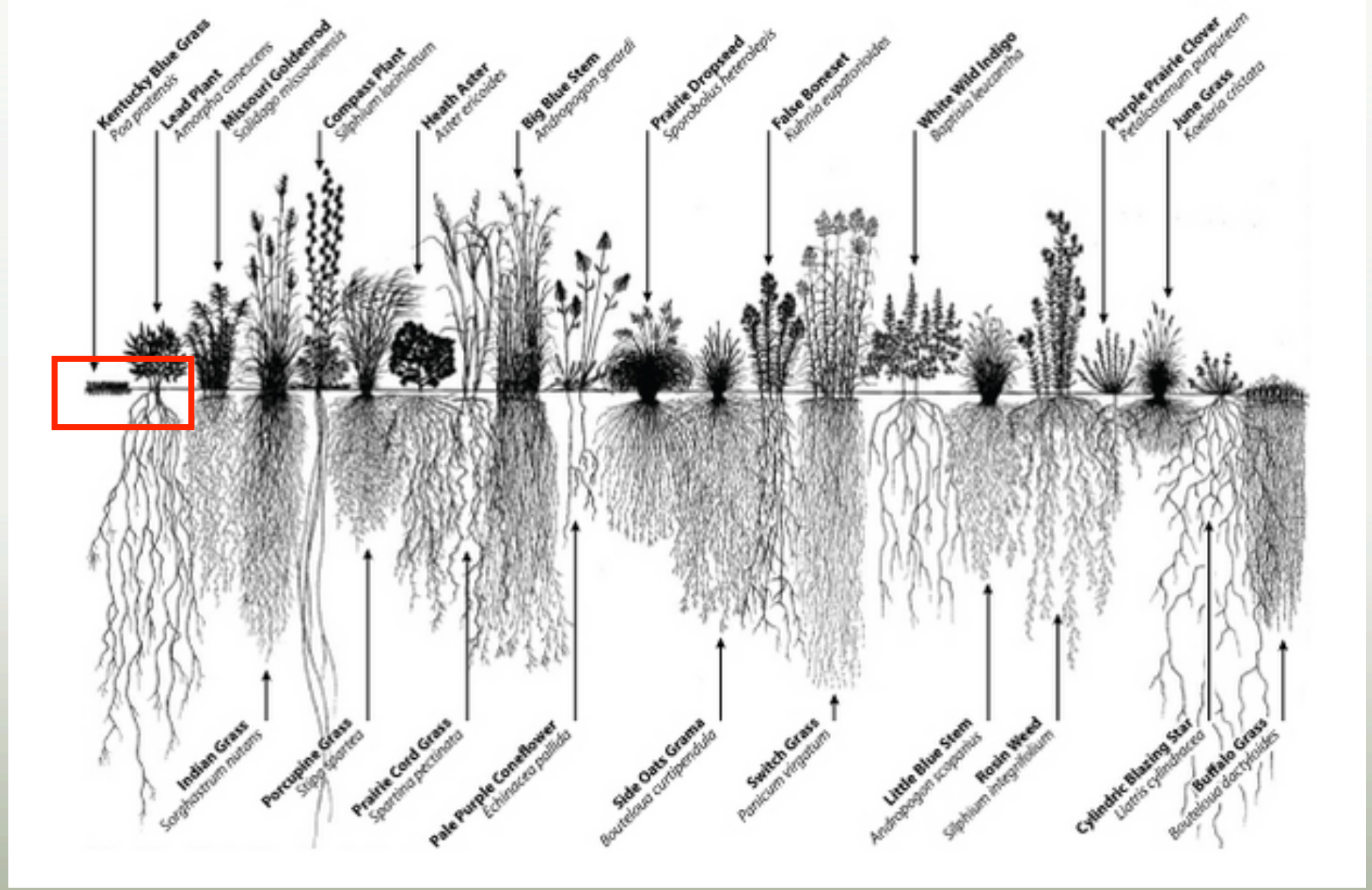
  Historical grazing = short graze followed by long periods of recovery
- Planned grazing could be a powerful tool to improve the land's resilience to environmental extremes

Paddock 6-B Continuous July 15,2016

- **To have a better relationship with the spouse!**



Video



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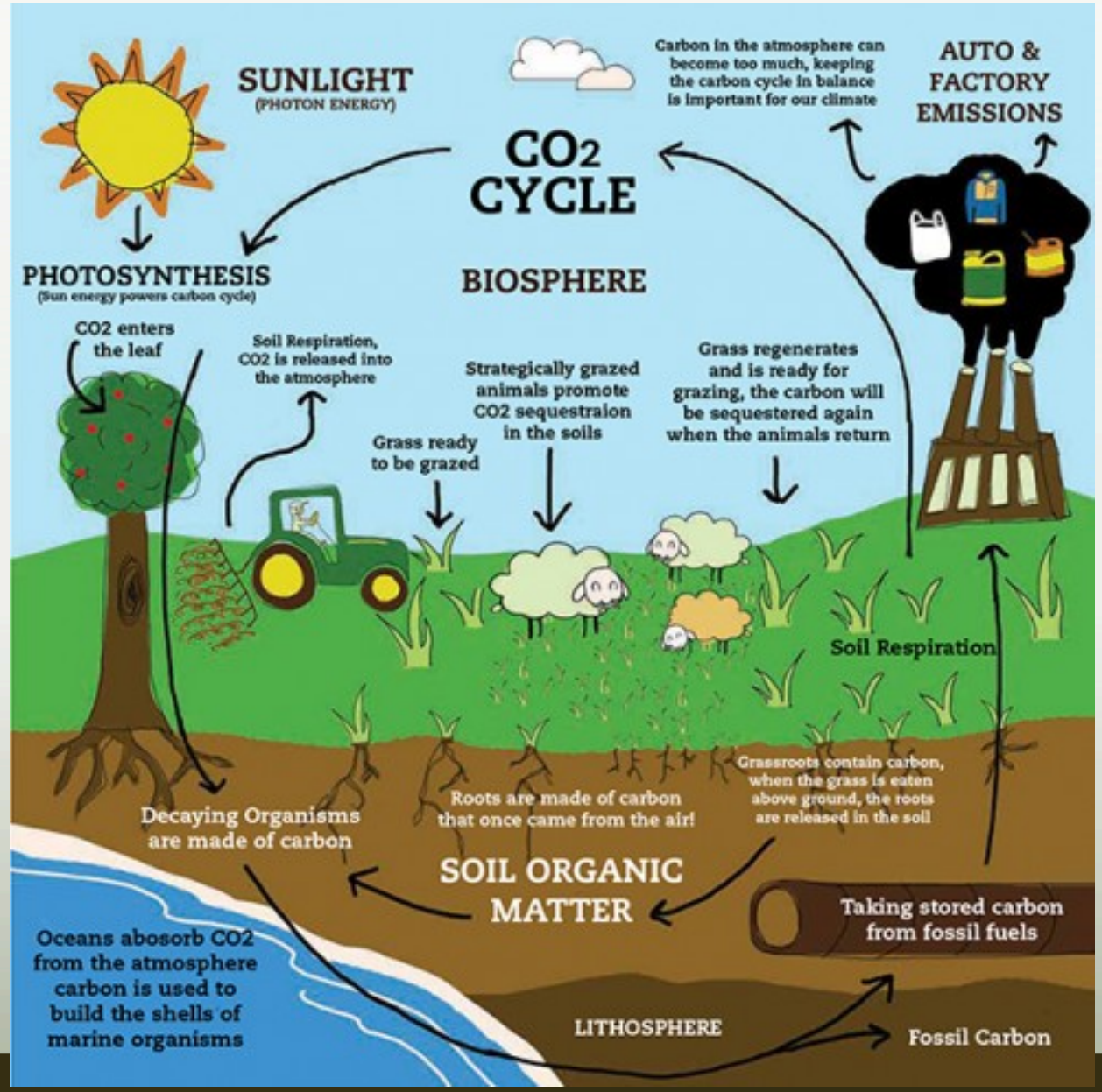
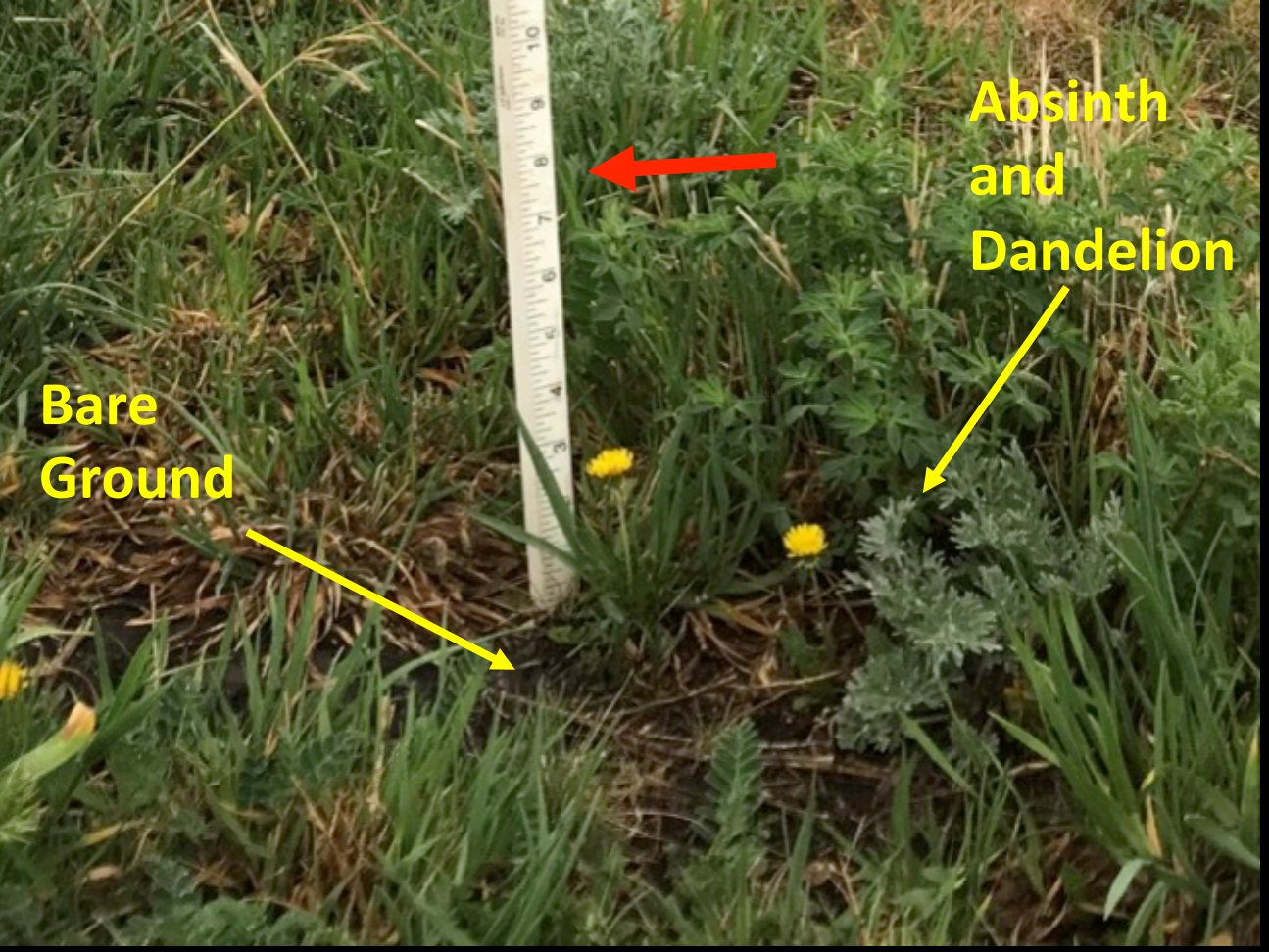
Credit: Nature Education 1995 Conservation Research Institute, Heidi Natura.

Carbon Cycle



A or B? – June 20, 2017

Fenceline Contrast



Paddock 20E – May 24, 2018
Continuous

Paddock 18E – May 24, 2018
Planned


10
15.2
Continuous Grazing
Summer
Field 11
12.3
Continuous Grazing
Summer
Field 12
18.6
Continuous Grazing
Summer
Field 15
22.2
Mob Grazing
Summer
37
Field 14
19.3
Mob Grazing
Field 9
15
Continuous Grazing
Summer
Field 13
21.3
Continuous Grazing
Summer
Field 7
3.1
Continuous Grazing
Summer
Field 19
19.1
Greenfeed, bale graze
Feb-Mar
Field 16
36.6
Mob Grazing
Summer
Field 8
41.8
Continuous Grazing
Summer
Field 6
25.7
Hay
Field 5
60.4
Hay, Alf/Tim/Hybrid brome
2.6
Field 20
5.4
Triticale, Bale graze
Late Mar
Field 17
37.9
Mob Grazing
Summer
4.8
Field 18
11.3
Mob Grazing
1.5
Field 21

Project Design

- 25 cow/calf pairs were placed on 22 planned grazing paddocks (4 acres each) – total of 90 acres
- 25 cow/calf pairs were placed on a continuous grazing pasture total of 89.9 acres
- Both pastures contained relatively the same species

Paddocks for McGonigle project INT 11	Planned herd paddock number(s)	# of ac	Continuous herd paddock number(s)	# of ac
A	1 – 4	**16.8**	5	**16.8**
B	7 – 11	**18**	14	**18**
C	12 – 13	**8.1**	7 – 8	**9.9**
D	15	**5.7**	16	**5.1**
E	17 – 19	**10.8**	20	**10.4**
F	21 – 23	**10.4**	24	**9.7**
G	25 – 28	**21.1**	30	**20**
Sum of acres		**90.9**		**89.9**

Project Design

- The planned cattle receive water by over-ground water pipe with multiple spigots which allow for water to be placed in every paddock they are in. Whereas the continuous grazing cattle have two watering sites throughout their continuously grazed pasture.
- Watering trough will be moved as the cattle move and attached to spigots throughout the pastures.

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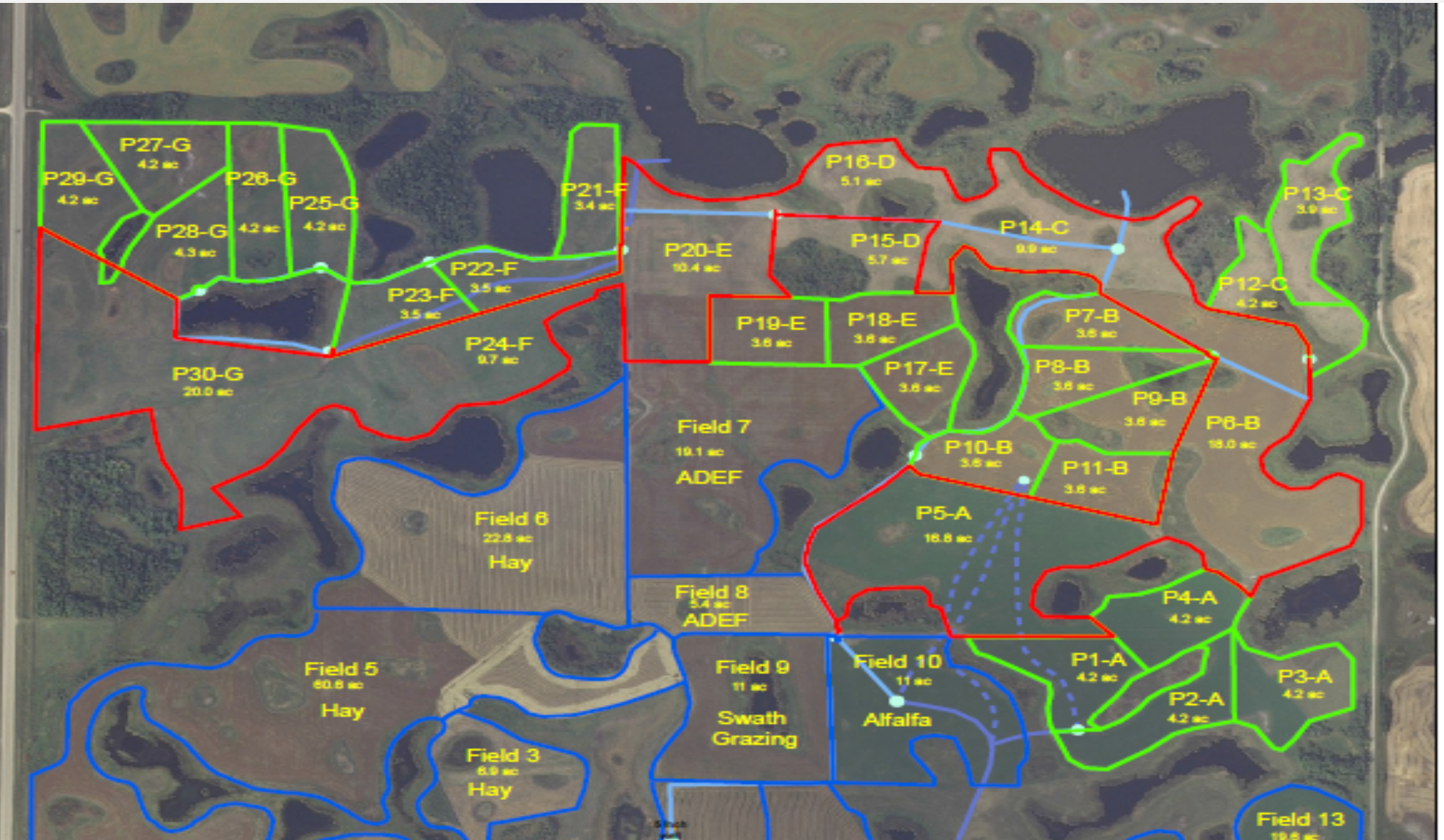
Design Layout



TOOLS

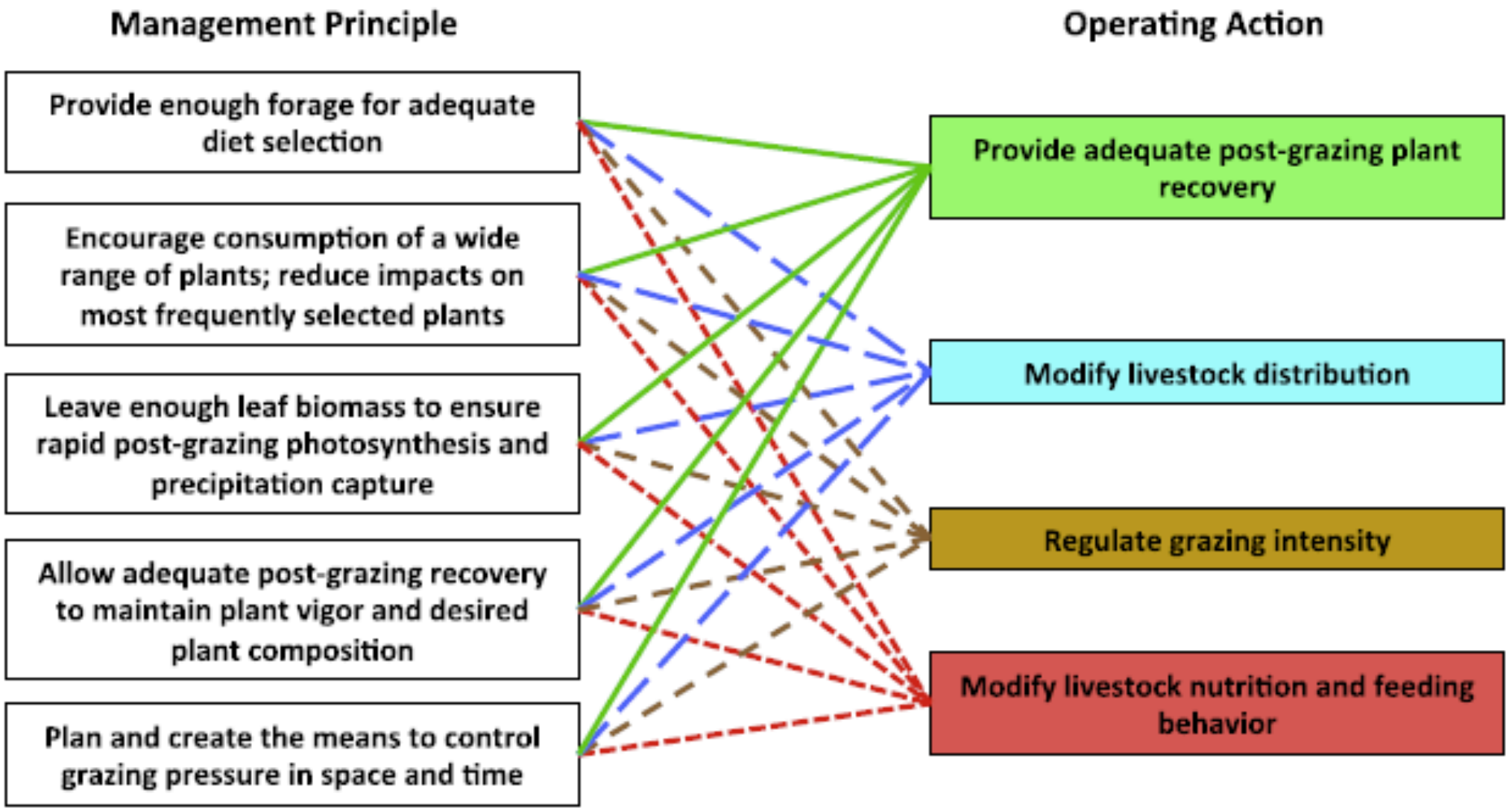


Fig. 1. Linkages between five principles of successful grazing management and four operational action categories used to apply these principles.

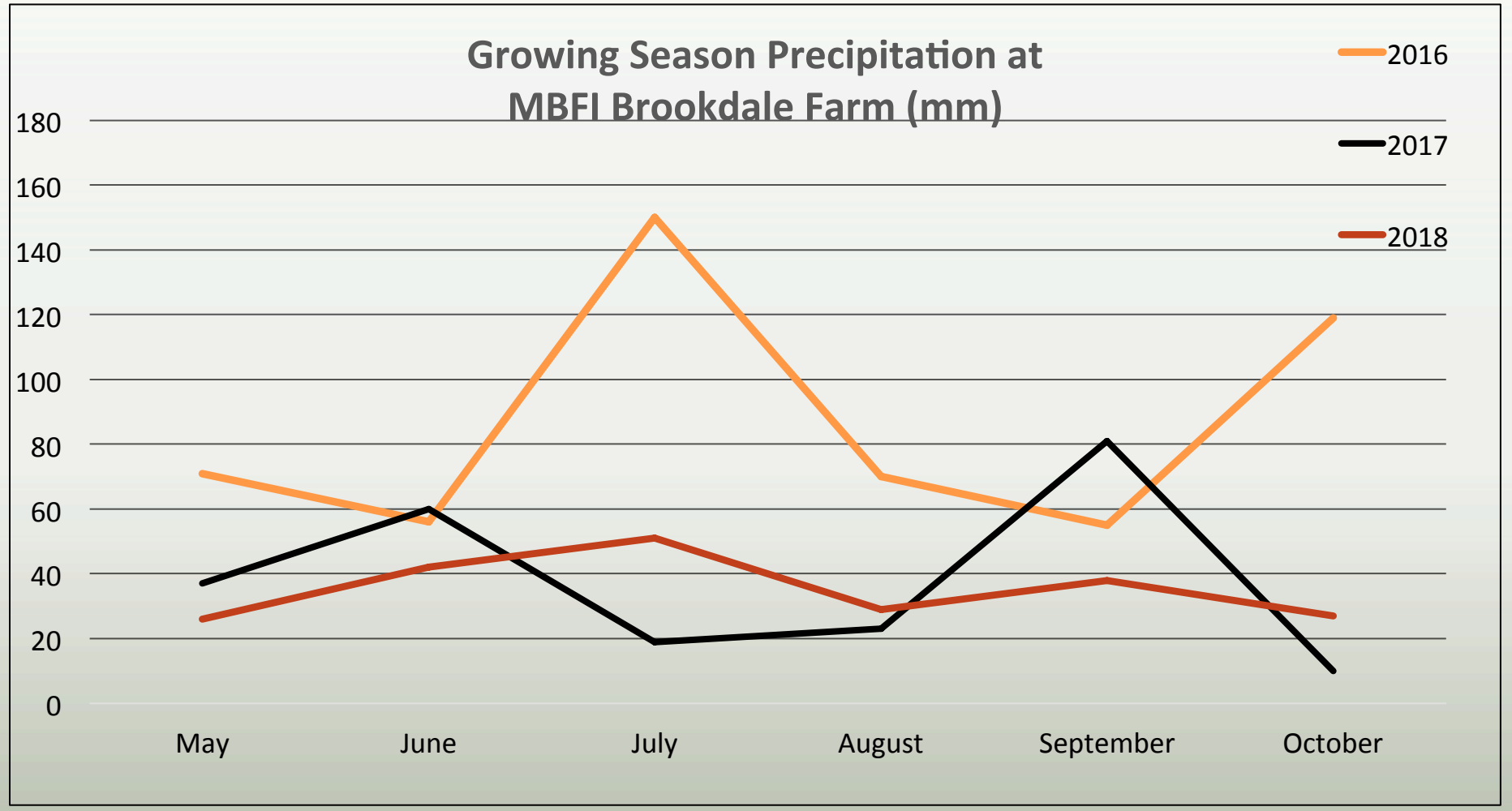
Teague-et-al-JEMA – 2013- Multi-paddock-grazing-JEM-20131

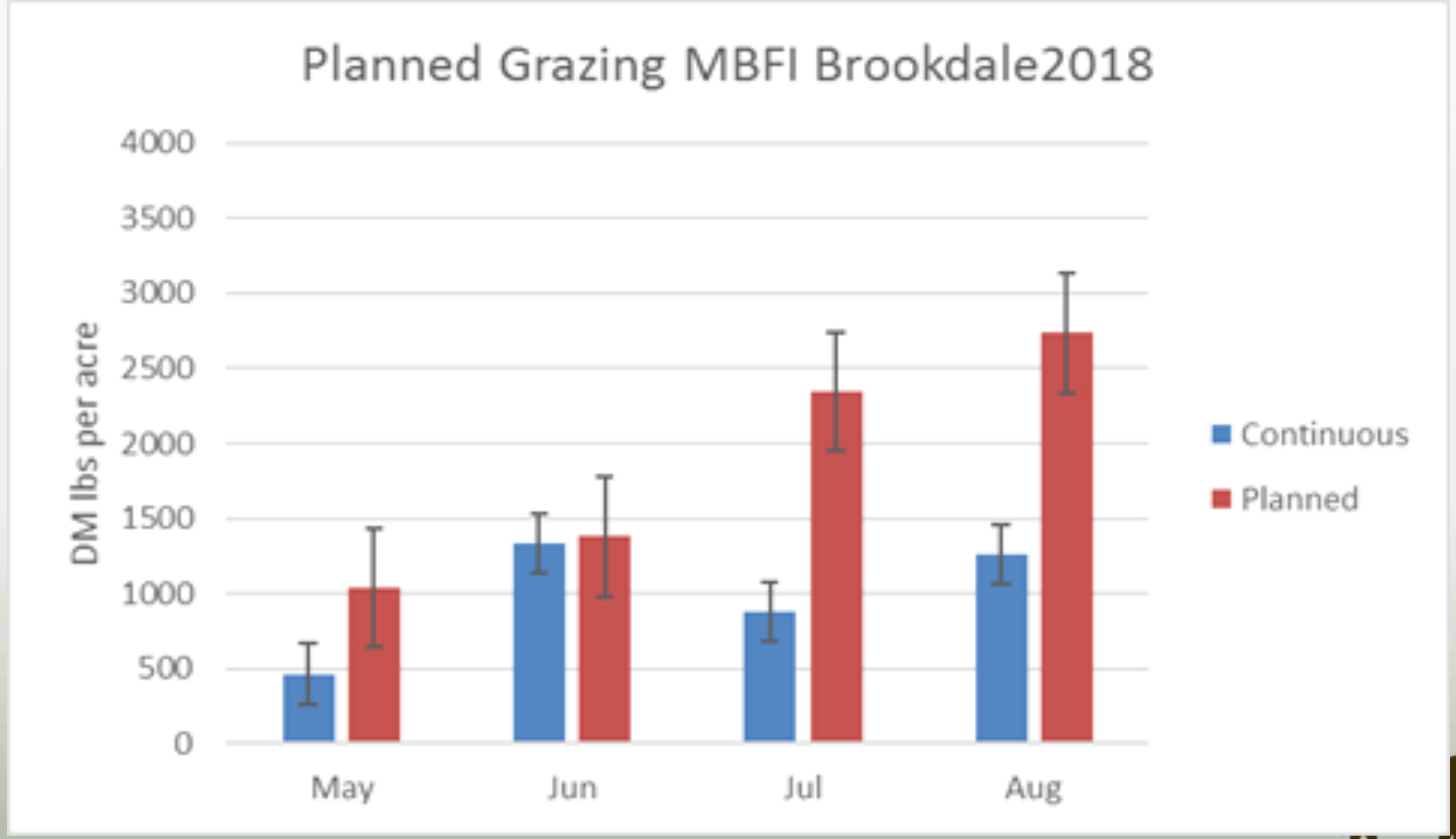
Rest!

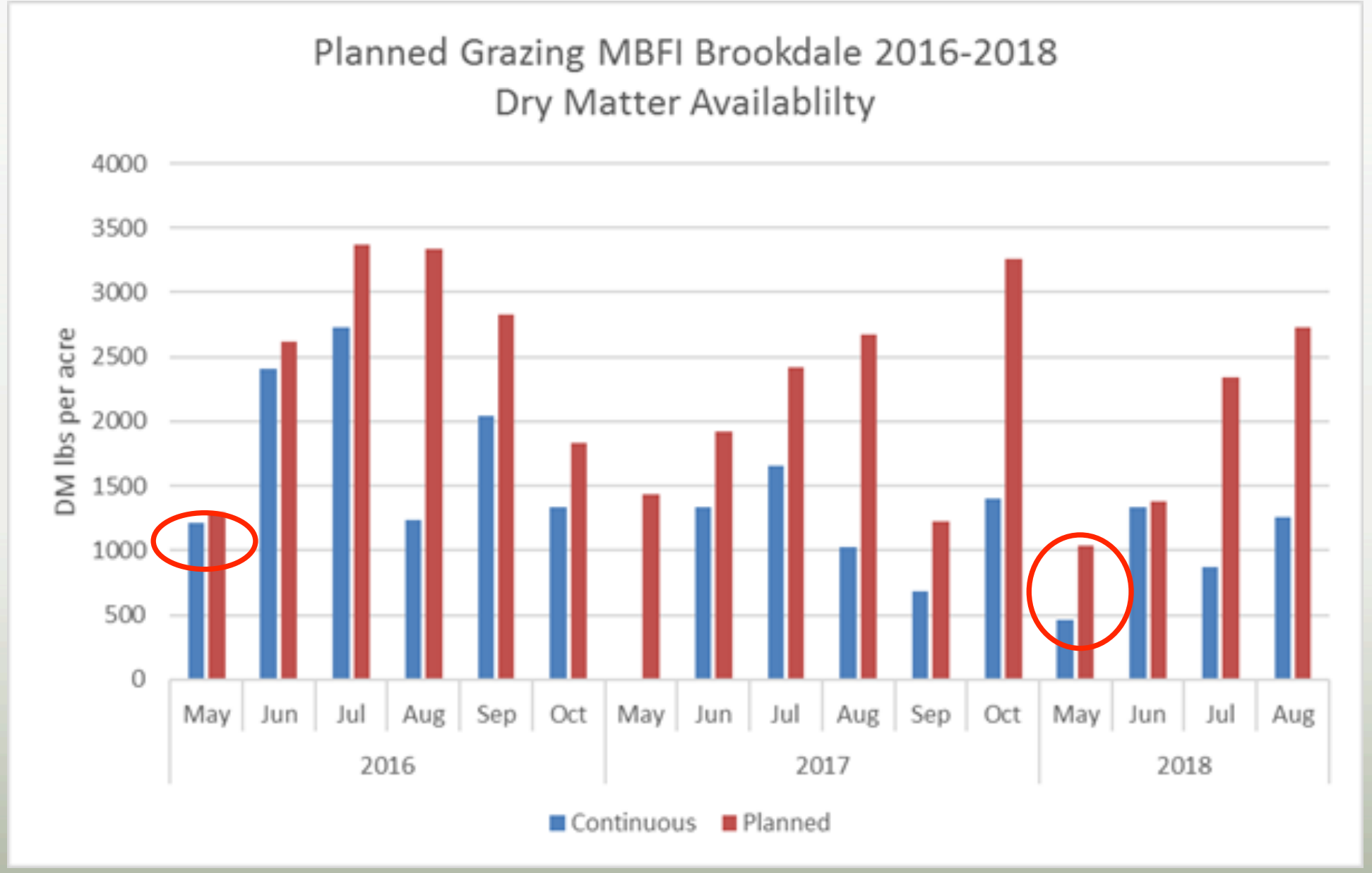
- Aim for 75-90 days rest on each paddock!
- We all need rest and so does the pasture!

Results

- 2016 – Both herds started grazing May 30, 2016 – continuous herd came off September 13 and planned herd came off September 30, 2016 (additional 17 days)
- 2017 - Started planned grazing – May 15, 2017 and continuous June 1, 2017, planned herd came off September 27, 2017 and continuous herd came off September 5, 2017 (38 more days grazing this year for planned herd).
- 2018 – started grazing May 28 – through to August 20. Continuous cows came off August 10 (DRY CONDITIONS!) Additional 10 days grazing. Good recovery in late fall when rains started.
- The planned cattle received water by over-ground water pipe with multiple spigots which allowed for water to be placed in every paddock they were in. Whereas the continuous grazing cattle had one watering site. All cows calved on pasture


Growing Season Precipitation at MBFI Brookdale Farm (mm)
2016
2017
2018
180
160
140
120
100
80
60
40
20
0
May
June
July
August
September
October


Planned Grazing MBFI Brookdale2018
DM lbs per acre
4000
3500
3000
2500
2000
1500
1000
500
0
May
Jun
Jul
Aug
Continuous
Planned


Planned Grazing MBFI Brookdale 2016-2018
Dry Matter Availablilty
DM lbs per acre
4000
3500
3000
2500
2000
1500
1000
500
0
May
Jun
Jul
Aug
Sep
Oct
2016
2017
2018
Continuous
Planned

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Results

Total Yield (lbs/acre) including residual Planned vs. Continuous Grazing Project							
Paddocks	2016		2017		2018		Description
	Planned	Continuous	Planned	Continuous	Planned	Continuous	
A	4759.13	2849.49	3818.67	2052.87	2636.72	2149.72	Tame Pasture
B	4002.53	2893.65	2627.87	1410.85	3108.17	1204.10	Tame Pasture
C	2290.65	1706.22	2621.63	2739.23	2268.98	1204.01	Native Pasture
D	3466.64	3724.18	2826.76	1398.96	4174.13	7811.26	Native Pasture *
E	4328.8	1680.58	3497.58	1214.3	3392.13	785.41	Tame Pasture
F	3963.42	5813.3	3185.89	2765.75	3346.65	1650.30	Tame/Native Mix
G	5105.58	5262.96	3178.04	1439.91	2505.38	849.95	Cicer Milk Vetch

* A lot of residual material not utilized by animals because of unpalatability

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Map
Satellite
Water was in 20E from May 28 to June 6
Water was in 30G from June 6 to July 27
30G
6B
6B
There was mineral in 6B May 28-June 22 and July 27 to August 10
Water was in 5A from May 28 to August 10
John Bracken Highway
10
Google
Map data ©2018 Google Imagery ©2018 CNES / Airbus, DigitalGlobe
100 m
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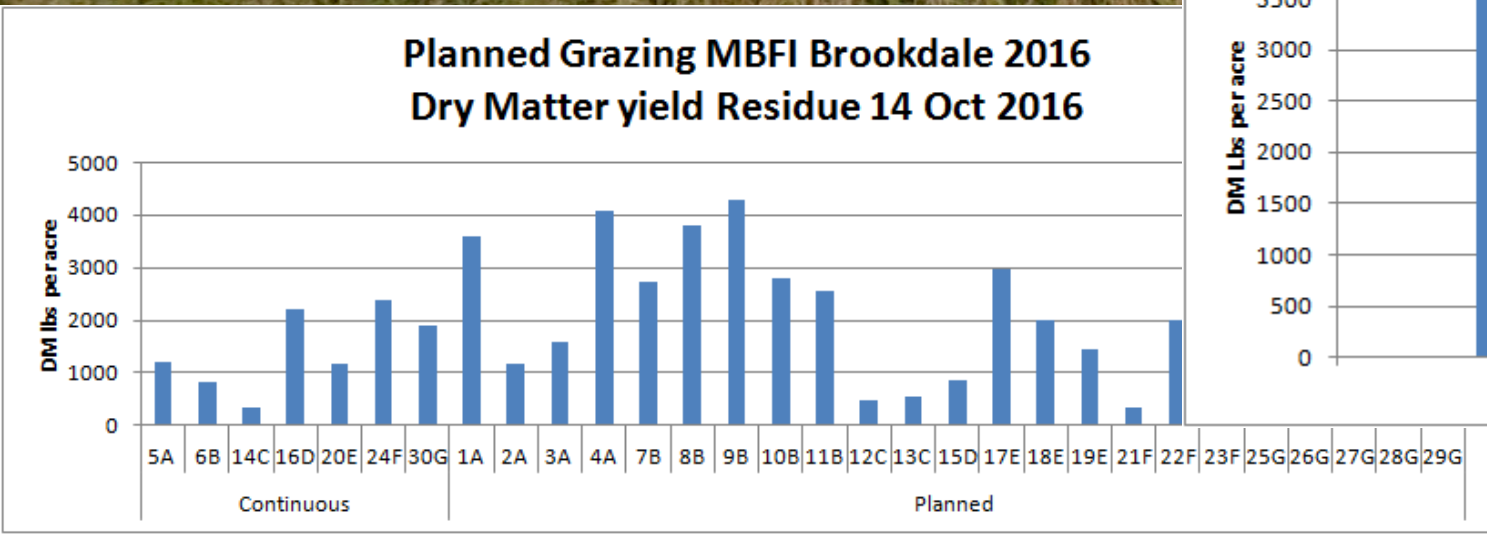
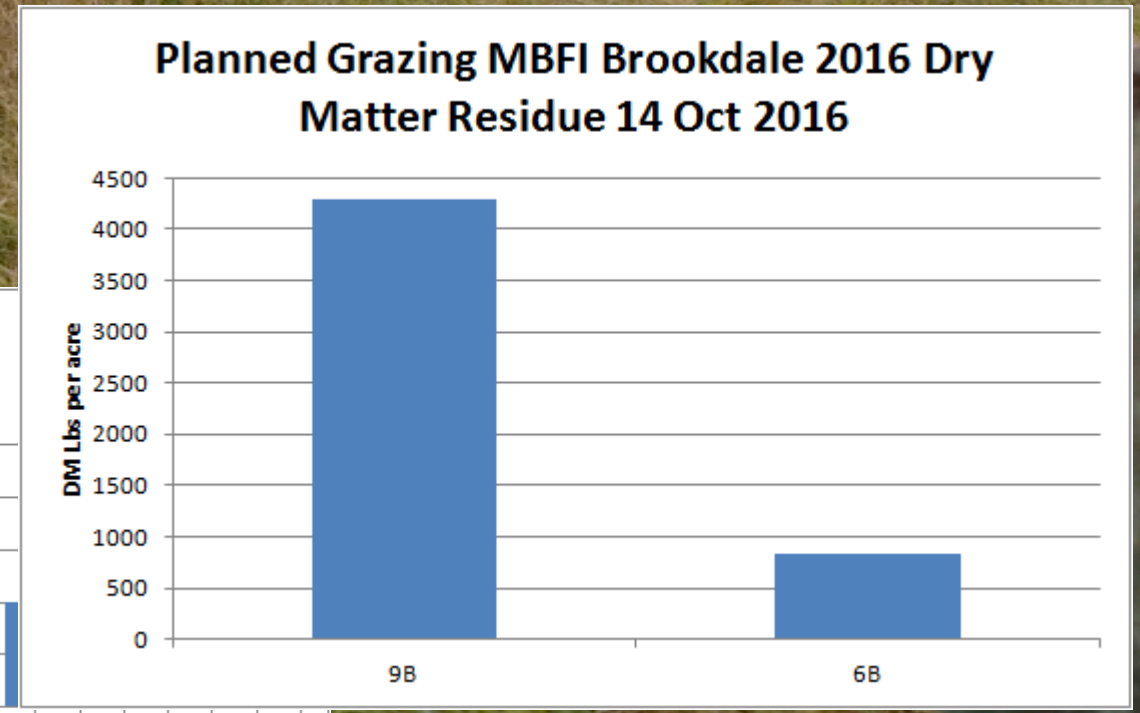
Report a map error

2016 – Fenceline Contrast

Paddock 9B (planned)

Paddock 6B (continuous)





Grazing Plan Brookdale-2016.xlsx

HMI
Healthy Land, Sustainable Future

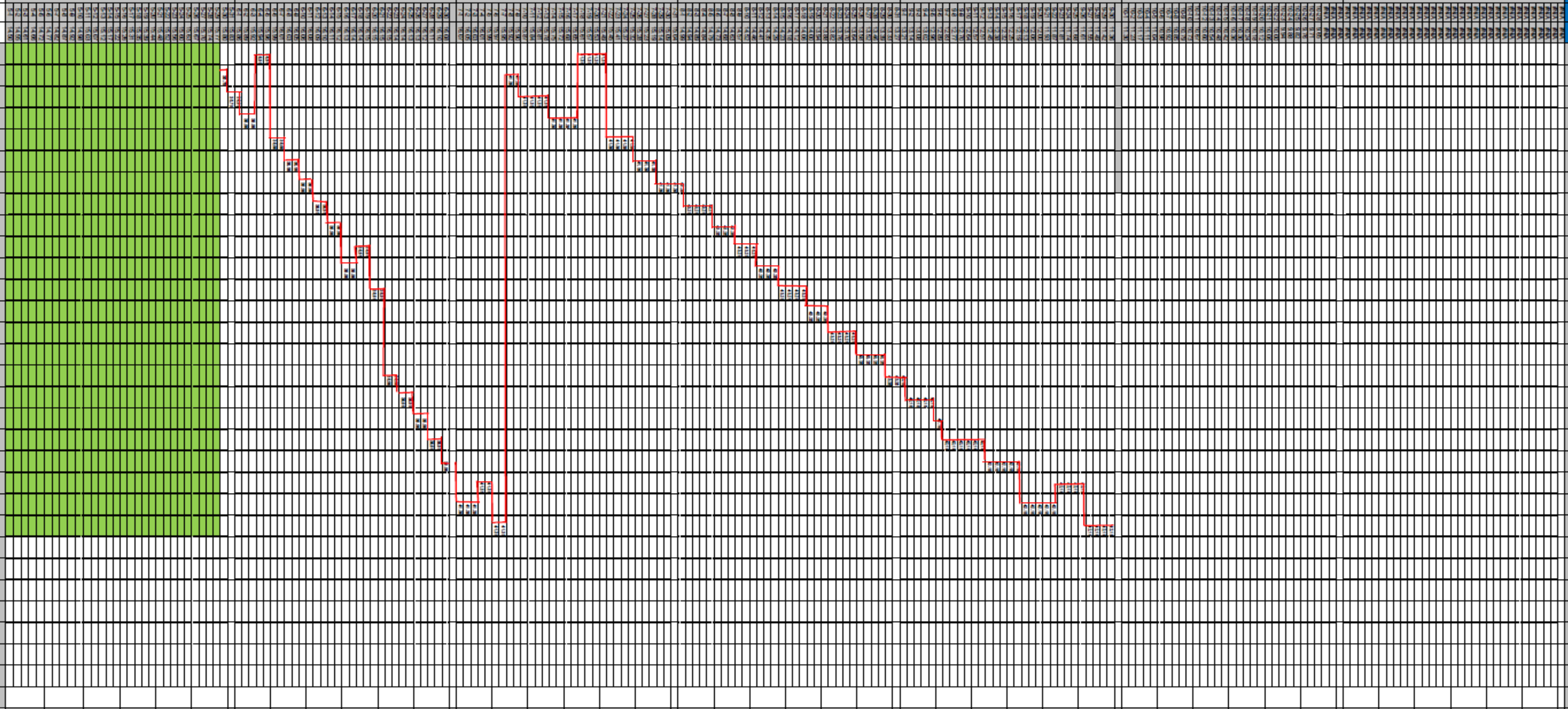
YEAR 2016 **SEASON** Growing (Open)

Grazing Plan & Control Chart
(Livestock / Wildlife / Crops / Other Uses)

Grazing Cell Brookdale

Calving Begins · Breeding Begins · Breeding Ends

May · June · July · August · September · October



ADA/H Actual / Estimate (1)		Estimated Relative Paddock Quality (AD) (2)	Paddocks Size (A/H) (3)	Paddocks Number / Name	Min # of Season Grazing Days	Max # of Season Grazing Days	AD	ADA	Paddock Number / Name (3)	Min Guide-lines (4)	Max Guide-lines	Graze Period (Days) (4)	Non-Growing Season: Estimated Available ADA/H (5)	Estimated Available ADs (6)	Planned Demand ADA/H (7)	Total Yield ADA/H (8)
86	50	210	4.2	P1-A	5	6	244	58	P1-A	2.1	4.7		#VALUE!			
69	50	115	2.3	P2-A	3	3	119	52	P2-A	1.2	2.6		#VALUE!			
73	50	200	4	P3-A	5	6	240	60	P3-A	2.0	4.5		#VALUE!			
84	50	225	4.5	P4-A	5	6	244	54	P4-A	2.3	5.1		#VALUE!			
93	50	180	3.6	P7-B	4	5	244	68	P7-B	1.8	4.1		#VALUE!			
91	50	180	3.6	P8-B	4	5	202	56	P8-B	1.8	4.1		#VALUE!			
106	50	180	3.6	P9-B	4	5	245	68	P9-B	1.8	4.1		#VALUE!			
96	50	180	3.6	P10-B	4	5	251	70	P10-B	1.8	4.1		#VALUE!			
81	50	180	3.6	P11-B	4	5	208	58	P11-B	1.8	4.1		#VALUE!			
53	40	168	4.2	P12-C	4	5	208	49	P12-C	1.7	3.8		#VALUE!			
58	40	156	3.9	P13-C	4	4	208	53	P13-C	1.6	3.5		#VALUE!			
49	35	199.5	5.7	P15-D	5	6	251	44	P15-D	2.0	4.5		#VALUE!			
64	50	180	3.6	P17-E	4	5	130	36	P17-E	1.8	4.1		#VALUE!			
67	50	180	3.6	P18-E	4	5	173	48	P18-E	1.8	4.1		#VALUE!			
61	50	180	3.6	P19-E	4	5	173	48	P19-E	1.8	4.1		#VALUE!			
64	40	136	3.4	P21-F	3	4	207	61	P21-F	1.4	3.1		#VALUE!			
75	50	210	4.2	P22-F	5	6	247	59	P22-F	2.1	4.7		#VALUE!			
31	50	215	4.3	P23-F	5	6	120	28	P23-F	2.2	4.9		#VALUE!			
96	50	210	4.2	P25-G	5	6	331	79	P25-G	2.1	4.7		#VALUE!			
69	40	168	4.2	P26-G	4	5	250	59	P26-G	1.7	3.8		#VALUE!			
73	40	168	4.2	P27-G	4	5	252	60	P27-G	1.7	3.8		#VALUE!			
81	40	172	4.3	P28-G	4	5	335	78	P28-G	1.7	3.9		#VALUE!			
82	40	168	4.2	P29-G	4	5	252	60	P29-G	1.7	3.8		#VALUE!			
Avg Paddock Quality		180.9	90.6		96	116										

	May	June	July	August	September	October	
21. Rainfall (in/mm)/month							
22. Snow							
Monthly Daylight Hrs	472.07	482.15	484.71	438.96	368.57	#N/A	#N/A
23. Growth Rate (F/S/D)							
24. Supplement or Feed - Type & Amount							
25. Number of Herds	1						
26. Paddocks Available	23	23	23	23	23		
27. Recovery Periods (Min / Max)	40 / 90	40 / 90	40 / 90	40 / 90	40 / 90		
28. Avg GP or AMGP / AMxGP							

Type of Animals	May No.	May Avg Wt (Lbs/Kgs)	May % Unit	May Total Units	June No.	June Avg Wt (Lbs/Kgs)	June % Unit	June Total Units	July No.	July Avg Wt (Lbs/Kgs)	July % Unit	July Total Units	August No.	August Avg Wt (Lbs/Kgs)	August % Unit	August Total Units	September No.	September Avg Wt (Lbs/Kgs)	September % Unit	September Total Units
29. Cows	25	1405	1.41	35.13	25	1417	1.42	35.43	25	1377	1.38	34.43	25	1402	1.40	35.05	24	1411	1.41	33.86
30. Calves	8	82	0.08	0.66	25	142	0.14	3.56	24	219	0.22	5.27	22	298	0.30	6.56	21	396	0.40	8.32
31. Bull									1	1702	1.70	1.70	1	1636	1.64	1.64				
32.																				
33a.																				
33b.																				
33c.																				
33d.																				
Monthly SAUs	35.78				38.99				41.39				43.25				42.18			

34. Total SAUs 201.59 | Min SAU 35.78 | Peak SAU 43.25

35. Cell Size: (Acres) 90.6

36. Stocking Rate: 2.1

Remarks: Cow- Calf pair switched this month

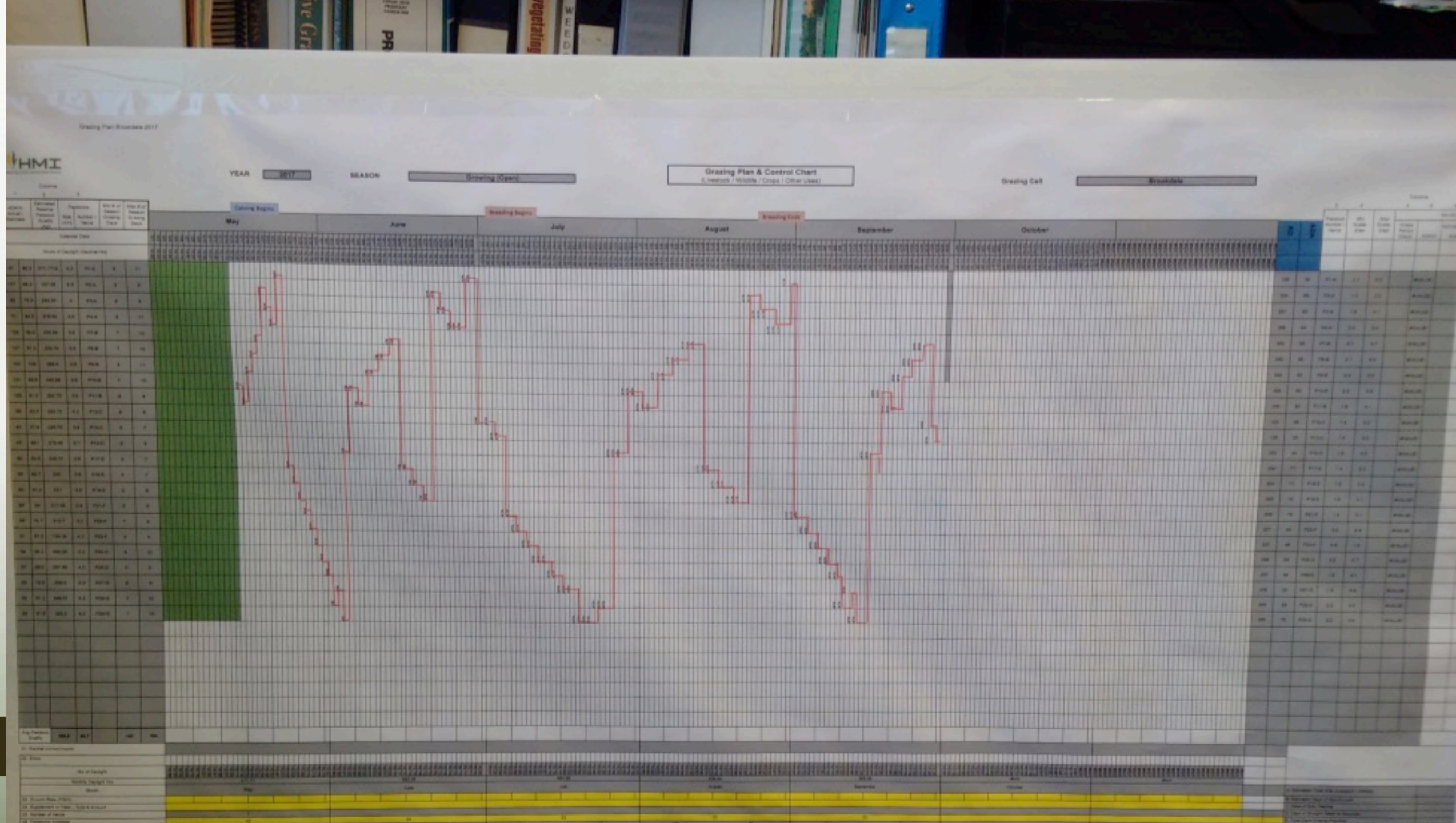
Exclusion Paddocks:

Special Attention Paddocks: Three calves died; 2.; 3.; 4.; 5.

A. Estimated Total ADs (Livestock / Wildlife)	
B. Estimated Days of Non-Growth	
C. Days of Bulk Feeding	
D. Days of Drought Reserve Required	
E. Total Days Grazing Required	
F. Estimated Carrying Capacity	

SUMMARY LIVESTOCK AND LAND PERFORMANCE

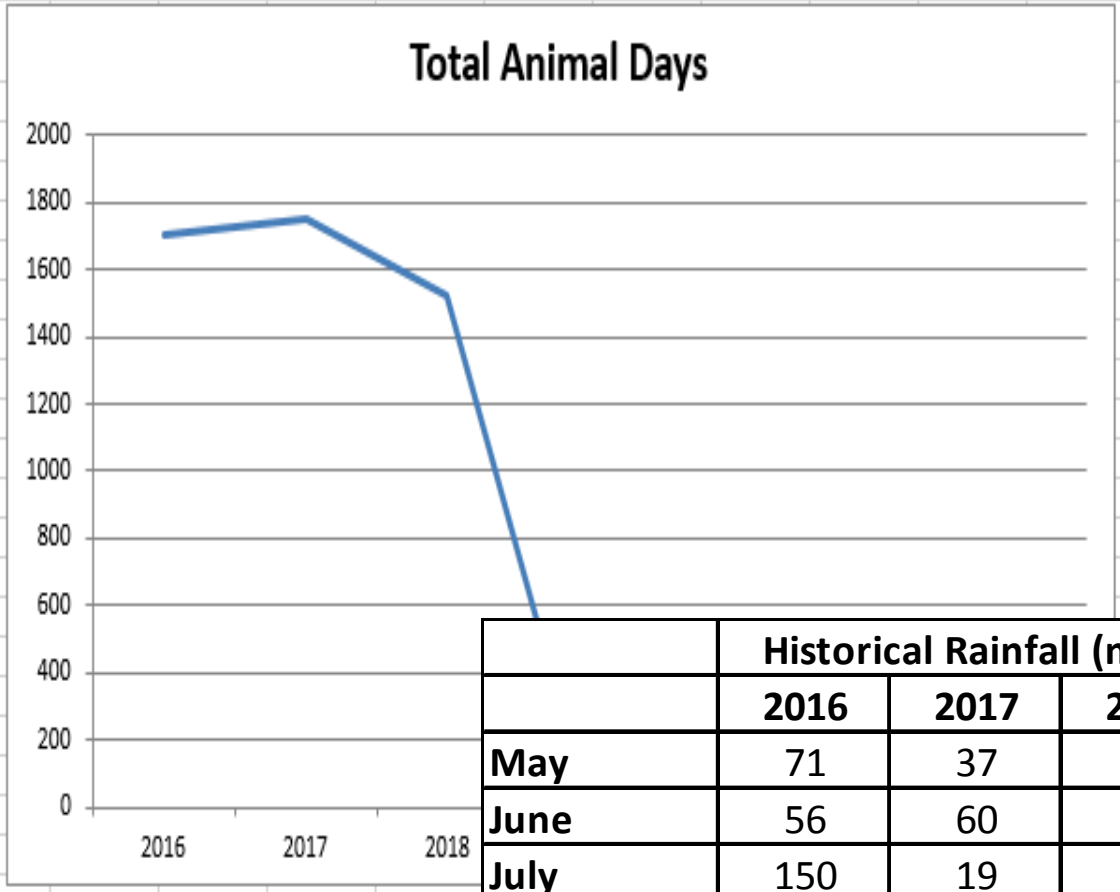
Calving / Lambing / Kidding			50	%
Avg Weaning Weight	20	Age	6	Months
Daily Weight Gains	45 (Growing)		35 (Non-Growing)	Lbs/Kg
SDA(H) / inch (mm) rainfall		#DIV/0!		
Total Yield (sold) per acre/hectare			33.11	Lbs/Kg


HMI
YEAR
2017
SEASON
Growing (Open)
Grazing Plan & Control Chart
Grazing Cell
Brookdale
May
June
July
August
September
October

Open Season Grazing Year

Graphical Presentation of Historical Paddock Quality (ADs), By Year

ADs								
Paddock Number/Nam	Paddock Size (Ac/H)	2016	2017	2018	2019	2020	2021	2022
P1-A	4.3	86	47	66				
P2-A	2.3	69	117	111				
P3-A	4	73	82	61				
P4-A	4.5	84	71	96				
P7-B	3.6	93	105	55				
P8-B	3.6	91	107	44				
P9-B	3.6	108	103	73				
P10-B	3.6	96	101	42				
P11-B	3.6	81	103	47				
P12-C	4.2	53	36	32				
P13-C	3.9	58	43	45				
P15-D	5.7	49	47	63				
P17-E	3.6	64	82	55				
P18-E	3.6	67	84	79				
P19-E	3.6	61	84	133				
P21-F	3.4	64	88	68				
P22-F	4.2	75	58	72				
P23-F	4.3	31	61	74				
P25-G	4.2	96	64	58				
P26-G	4.2	69	57	65				
P27-G	4.2	73	63	57				
P28-G	4.3	81	62	68				
P29-G	4.2	82	85	58				
23	90.7	1705	1750	1521	0	0	0	0

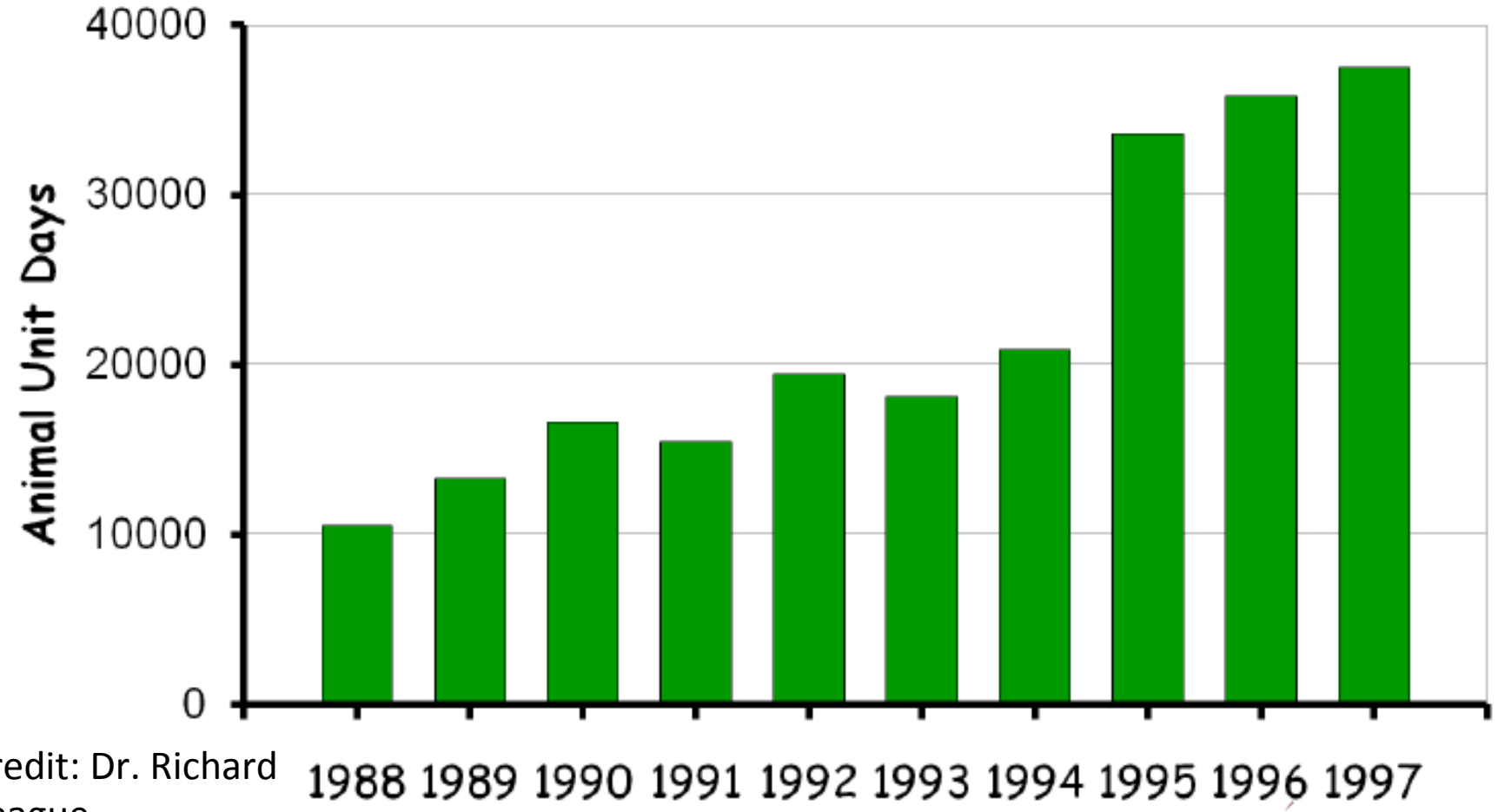


	Historical Rainfall (mm)		
	2016	2017	2018
May	71	37	26
June	56	60	42
July	150	19	51
August	70	23	29
September	55	81	38
October	119	10	27
	521	230	213

Restoration using multi-paddock grazing

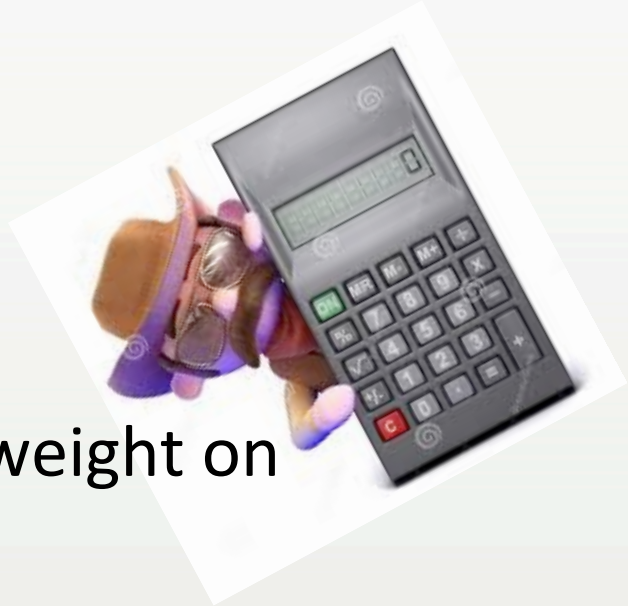
Noble Foundation, Coffey Ranch

Charles Griffith, Hugh Aljoe, Russell Stevens



Credit: Dr. Richard Teague

Economics



- Cows and calves in both groups gained relatively the same weight on pasture in 2017
- **17 more days grazing in 2016**
- **38 more days grazing in 2017**
- **10 more days grazing in 2018**

From a winter Feed Cost Perspective:

$1.73 per cow per day plus yardage at $1.35 per days = $3.08 per hd/day

$3.08 X 65 days = $200.00 X 25 cows = $5005.00

Additional Resources

- 5153.6 metres of additional fence (3.5 miles)
- 2 additional workers each morning to move animals,

check waterers for 1 hour (includes forage sampling for yield – not something ordinarily done)

- Solar Powered watering system, above ground pipe and spiggots
- Step-in posts and two reels and wire

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Food For Thought:

- Carbon Sequestration
- Impact on the environment: Salamanders, deer, coyotes, garter snakes, bird species
- Regenerating land value (forage species)


QUESTIONS?