

Calculations of days in each pasture based on assumption of average growing-season conditions:

<u>Pasture</u>	<u>Day on</u>	<u>Day off</u>	<u>lbs consumed/ac/day</u>	<u>lbs growth/ac/day</u>	<u>lbs stdead lost/ac/day</u>	<u>Net decline lbs/day</u>	<u>lbs/ac ON</u>	<u>lbs/ac OFF</u>	<u>Diff</u>	<u>Calculated Days</u>	<u>Rounded Days</u>	<u>Cummulative Days</u>
Elm	5/15/2013	5/25/2013	10.9	6.30	5.00	9.62	550	450	100	10.4	10	10
Snowfence	5/25/2013	6/17/2013	11.8	12.60	8.33	7.50	619	450	169	22.5	23	33
Headquarters	6/17/2013	7/8/2013	12.7	9.60	5.00	8.11	567	400	167	20.6	21	54
Ridgeline	7/8/2013	7/23/2013	13.3	4.80	1.67	10.21	554	400	154	15.0	15	69
Saltflat	7/23/2013	8/18/2013	14.0	0.00	5.00	19.00	945	450	495	26.1	26	95
Crossroads	8/18/2013	9/9/2013	14.6	0.00	0.00	14.55	720	400	320	22.0	22	117
Hilltank	9/9/2013	10/1/2013	14.8	0.00	0.00	14.75	630	300	330	22.4	22	139
Highway	not used						630	300			0	139

Rested Pastures

South	rested
Nighthawk	rested

Calculations of days in each pasture based on assumption of severe drought conditions (forage production set at 60% of normal):

<u>Pasture</u>	<u>Day on</u>	<u>Day off</u>	<u>lbs consumed/ac/day</u>	<u>lbs growth/ac/day</u>	<u>lbs stdead lost/ac/day</u>	<u>Net decline lbs/day</u>	<u>lbs/ac ON</u>	<u>lbs/ac OFF</u>	<u>Diff</u>	<u>Days Available</u>	<u>Rounded Days</u>	<u>Cummulative Days</u>
Elm	5/15/2013	5/27/2013	10.8	3.78	1.67	8.69	550	450	100	11.5	12	12
Snowfence	5/27/2013	6/9/2013	11.4	7.56	4.17	7.97	550	450	100	12.6	13	25
Headquarters	6/9/2013	6/19/2013	11.9	2.88	1.00	10.00	500	400	100	10.0	10	35
Ridgeline	6/19/2013	6/27/2013	12.3	2.88	1.00	10.44	522	400	122	11.7	8	43
Saltflat	6/27/2013	7/18/2013	13.0	3.78	2.50	11.76	697	450	247	21.0	21	64
Crossroads	7/18/2013	7/24/2013	13.5	0.00	0.00	13.52	482	400	82	6.1	6	70
Hilltank	7/24/2013	8/2/2013	13.8	0.00	0.00	13.78	428	300	128	9.3	9	79
Highway	8/2/2013	8/15/2013	14.1	0.00	0.00	14.11	478	300	178	12.6	13	92
Nighthawk	8/15/2013	8/31/2013	14.5	0.00	0.00	14.47	528	300	228	15.8	16	108
South	8/31/2013	9/9/2013	14.7	0.00	0.00	14.70	532	400	132	9.0	9	117

Note: All 10 pastures used in this scenario; cattle still leave early on Sept 9th

The following columns in the previous worksheet are based on the following assumptions:

<u>Column</u>	<u>Units</u>	<u>Explanation</u>
D	Lbs consumed per acre per day	These values are based on the average size of the steers and assumes they eat 2.5% of their body weight in forage each day; values increase over the growing season as the animals get bigger
E	Lbs growth per acre per day	This is the rate at which plants are growing while the steers are in the pasture. We assume plants produce approx 20% of their annual total in May, 40% in June, 20% in July, and declines to near zero after that. We also assume that loamy pastures have total annual growth of 630 lbs/ac, sandy pastures have 945 lbs/ac, and loamy/sandy mixture pastures produce 720 lbs/ac.
F	Lbs standing dead lost per day	This is the rate at which standing dead biomass transitions to the litter layer due to impact of rain, hail, trampling, wind, etc. This rate is assumed to be greatest in June, and slower but still important in May and July. It is also greater in the sandy pasture (which have more standing dead from the prior year) compared to the loamy pastures (which retain less dead biomass from the prior year)
G	Net decline in forage, lbs/day	This is the net daily rate at which plant biomass declines in the pasture on a daily basis, calculated as $D+F-E$
H	lbs/ac on	Pounds of total forage available to the cattle on the day they go into the pasture. Early in the season, this is mostly standing dead, but rapidly swithes to being mostly current-year's growth of forage; 550 for Elm on May 15 is assumed to be mostly residual dead from the previous year. By August, this is set as being equivalent to the current year's total production.
I	Lbs/ac off	Threshold at which cattle are removed from the pasture
J	Difference (in lbs/ac)	Difference between H and I
K	Days in Pasture	Calculated as J divided by G