Grazing and Hay Records: Spreadsheet Template

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Grazing records are an essential component of any range or pastureland management program. For most producers, their greatest value is as a tool for planning the future year's grazing, including pasture rotations, stocking rates and timing of grazing. In addition, records are an important item for any grazing lease arrangement as well as participation in government conservation or disaster relief programs.

Spreadsheet Components

The *Grazing and Hay Records Spreadsheet* is a blank template for entering your basic grazing and hay feeding records. The template is for the Microsoft Excel® program. Based on input data for individual pastures, it automatically will calculate the planned and available animal unit months (AUM) of grazing, days of grazing, stocking rates in AUM and animal unit days (AUD)/acre, and used and remaining AUM. In addition, summary report sheets are generated and are as follows:

- *Seasonal Distribution:* A graph showing the seasonal distribution of grazing for each pasture.

- *Stocking Summary:* Summary of stocking rates for each pasture and entire ranch.

- *Drylot Fed Hay:* A sheet to record hay fed to cattle in drylot or on feed grounds. (Note: fed hay amounts must be entered and they are automatically summarized).

- *Fed Hay Summary:* Summary of hay fed from both pasture and drylot situations. Graphs also are generated that display total hay fed by month and by livestock class.

- *Forage Demand Summary:* Summary of pasture forage demand (AUM). Graphs also are generated that display total AUM by month and by livestock class.

Using the Grazing and Hay Records Spreadsheet

The template contains 50 individual sheets to accommodate records for up to 50 pastures. Pasture sheets are numbered 1 to 50 and appear on the tabs at the bottom of the Excel workspace *(Figure 1)*. Pasture names or numbers entered by the user automatically will transfer to the sheet tab. Cells that are shaded in blue are available for user information and data input. For a pasture, the user enters the following information:

- pasture name or number
- current year (of the data you are entering)
- acres (size of pasture)

For the **current year's** plan for a pasture, the user can click on the drop-down tab to change to the stocking rate units they wish to use (shown in the yellow box). The choices are: AUM/acre, AUD/acre, or they can select AUM (total) for that pasture. AUM/acre is the default.
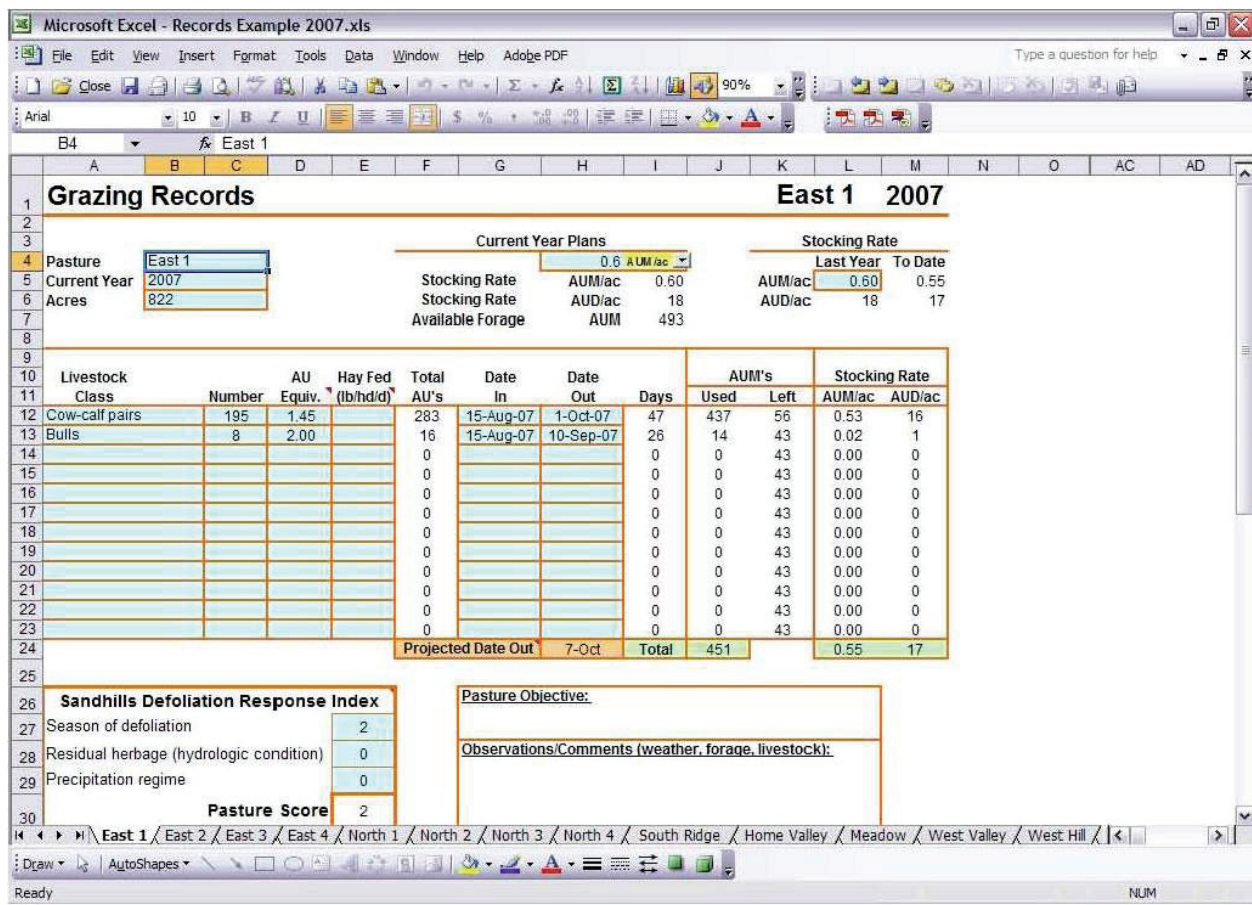
Figure 1. Grazing records entry sheet with example data. Cells highlighted in light blue are available for data entry.

The previous year's **stocking rate** also can be entered as a planning reference.

For each grazing event in a pasture (up to 12 lines available), the user enters:

- **livestock class** (**note:** this must be selected from the drop-down list that appears when you click on the cell)
- **number of head**
- **AU equivalent**
- **hay fed** (enter in lb/head/day if any hay was fed while in that pasture)
- **date in pasture**
- **date out pasture** (date in and date out can be entered in any of the following formats: 8-15-07; 8/15/07; August 15, 2007; or 15 August 2007 (months can be abbreviated and year can include the last 2 digits or all 4)

Livestock classes are selected from the drop-down tab and choices include cow-calf pairs, dry cows, bred heifers, yearling heifers, weaned steer or heifer calves, yearling steers or heifers, bulls and horses. For each livestock class, the number of head and animal unit equivalent (AU Equiv.) are entered. The assignment of animal unit equivalents can vary, but it is recommended that the user adopt a consistent standard where 100 lb of animal

weight equals 0.1 animal unit. A herd of cow-calf pairs, for example, with cows averaging 1200 lb and calves 250 lb, would be assigned an animal unit equivalent of 1.45. If desired, changes in the animal unit equivalent value can be made periodically as animals grow. Moving the cursor over the red triangle in the "AU Equiv." column heading box will open a dialog box that provides additional information about animal unit equivalents.

Hay that was fed to livestock while in a pasture also can be recorded *(Figure 1)*. This amount is entered as lb/head/day and the equivalent feed value of that hay is subtracted from the grazing AUM demand for that pasture. If, for example, hay was fed for several days after a snow storm, the user would create an entry line with the inclusive dates that the hay was fed. The final entry made for a grazing event and livestock class is the date in and out of that pasture. The "Projected Date Out" shown in the orange shaded box is automatically calculated and is based on the first grazing event and livestock class that was entered and takes into account the current year stocking rate plan for that pasture.

The grazing records entry sheet *(Figure 1)* also has an *optional* section for the *Sandhills Defoliation Response Index System* (SanDRIS) where one may record values for:

- season of defoliation
- residual herbage (hydrologic condition)
- precipitation regime

Summary Report Sheets

There are five report sheets that provide a tabular and/or graphical summary of data entered on the individual pasture sheets. These include tabs labeled *Seasonal Distribution, Stocking Summary, Drylot Fed Hay, Fed Hay Summary,* and *Forage Demand Summary.* Summary sheets are accessed by clicking the desired tab which appears after the sheet tabs for the 50 individual pastures. Examples of several of these summary sheet reports are shown in *Figures 2* through *7.* Summary sheets, with the exception of parts of the *Drylot Fed Hay* sheet are automatically generated. For *Drylot Fed Hay* records, the user enters the lb/head/day fed, number of head, and the beginning and ending dates that feeding occurred for each livestock class. The total tons of hay fed and the equivalent in AUM are automatically calculated.
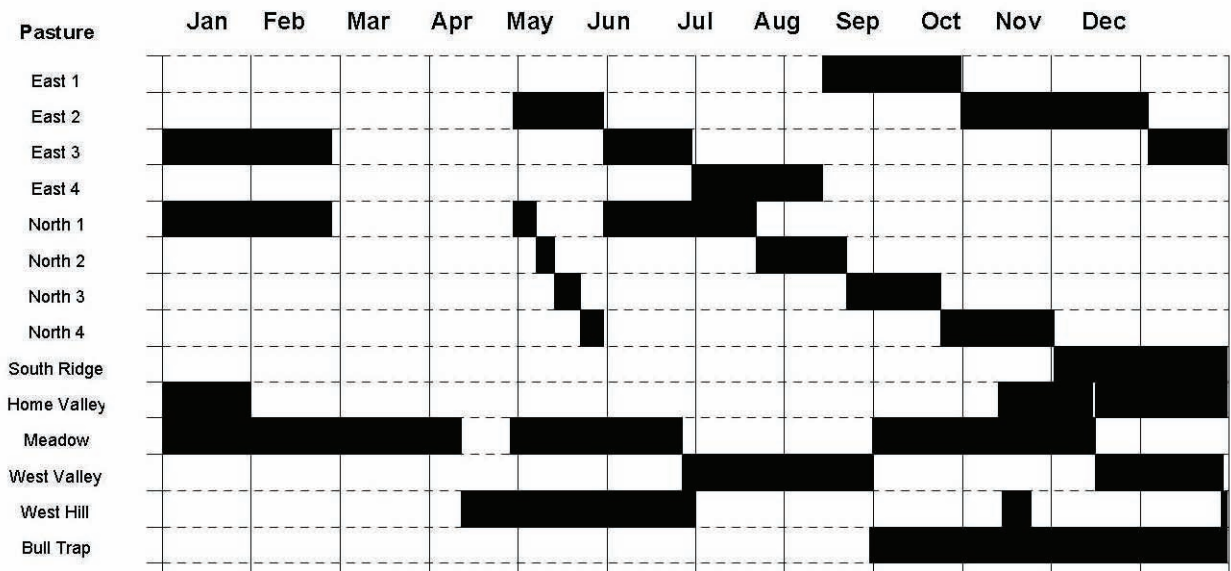

Figure 2. Example seasonal distribution graph showing periods of grazing (shaded in black) for 14 individual pastures.

Stocking Rate Summary

Pasture	Acres	Total AUM / Pasture			AUM/ac			AUD/ac			Response Index Score
		Planned	Used	Left	Planned	Used	Left	Planned	Used	Left	
East 1	822	493	446	47	0.60	0.54	0.06	18	16	2	2
East 2	1260	819	797	22	0.65	0.63	0.02	20	19	1	1
East 3	1100	660	705	-45	0.60	0.64	-0.04	18	19	-1	0
East 4	832	416	441	-25	0.50	0.53	-0.03	15	16	-1	-3
North 1	1046	628	715	-87	0.60	0.68	-0.08	18	21	-3	-4
North 2	680	340	331	9	0.50	0.49	0.01	15	15	0	-2
North 3	560	364	369	-5	0.65	0.66	-0.01	20	20	0	0
North 4	500	325	383	-58	0.65	0.77	-0.12	20	23	-3	2
South Ridge	995	597	419	178	0.60	0.42	0.18	18	13	5	4
Home Valley	710	320	251	68	0.45	0.35	0.10	14	11	3	6
Meadow	230	575	538	37	2.50	2.34	0.16	76	71	5	-1
West Valley	635	318	314	3	0.50	0.49	0.01	15	15	0	-3
West Hill	362	217	148	69	0.60	0.41	0.19	18	12	6	0
Bull Trap	430	237	176	61	0.55	0.41	0.14	17	12	4	3
Total	10162	6308	6034	274	---	---	---	---	---	---	---
Pasture Avg.[1]	---	---	---	---	0.71	0.67	0.04	22	20	1	0.4
Ranch Avg.[1]	---	---	---	---	0.62	0.59	0.03	19	18	1	---

[1] Pasture average is calculated from the AUM/ac or AUD/ac of each pasture. Ranch average is calculated from total ranch acres and total AUM's used.

Figure 3. Example stocking rate summary for 14 pastures in a ranch or management unit.

Fed Hay Summary

Total tons of hay fed by livestock class. Includes hay fed while on pasture and drylot.

Livestock Class	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Livestock Class Total
Cow-calf pairs			196.9	196.9									393.8
Dry cows	84.4	78.8											163.1
Bred heifers (replacement 18-24 months)	12.0	27.0	31.0	30.0									100.0
Yearling heifers (replacement 12-17 months)													
Heifer calves (replacement 4-12 months)	28.8	26.9	29.8	28.8									114.2
Weaned steer/heifer calves (4-12 months)													
Yearling steers/heifers (12-17 months)													
Bulls	5.0	4.6	5.1	2.1									16.8
Horses													
Monthly Totals	130.1	137.3	262.8	257.8									787.9

Figure 4. Example fed hay summary table showing total tons of hay fed to each livestock class by month. The fed hay summary sheet also has figures showing total tons of hay fed by month and percentage of hay fed by livestock class.

Pasture Forage Demand Summary (AUM)

Total AUM from grazing by livestock class.

Livestock Class	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Livestock Class Total
Cow-calf pairs					510	510	544	558	552	275			2951
Dry cows	230	215								244	444	459	1592
Bred heifers (replacement 18-24 months)	49										37	82	167
Yearling heifers (replacement 12-17 months)					86	84	98	98	106	110	57		638
Heifer calves (replacement 4-12 months)										4	58	60	122
Weaned steer/heifer calves (4-12 months)										80			80
Yearling steers/heifers (12-17 months)													
Bulls	31	29	32	38	45	43	45	45	48	45	43	45	489
Horses													
Monthly Totals	310	244	32	38	641	637	687	701	707	758	639	645	6039

Figure 5. Example forage demand summary sheet showing total AUM of grazing for each livestock class by month. This summary sheet also has figures showing total AUM of grazing by month (Figure 6) and percentage of AUM demand by livestock class (Figure 7).
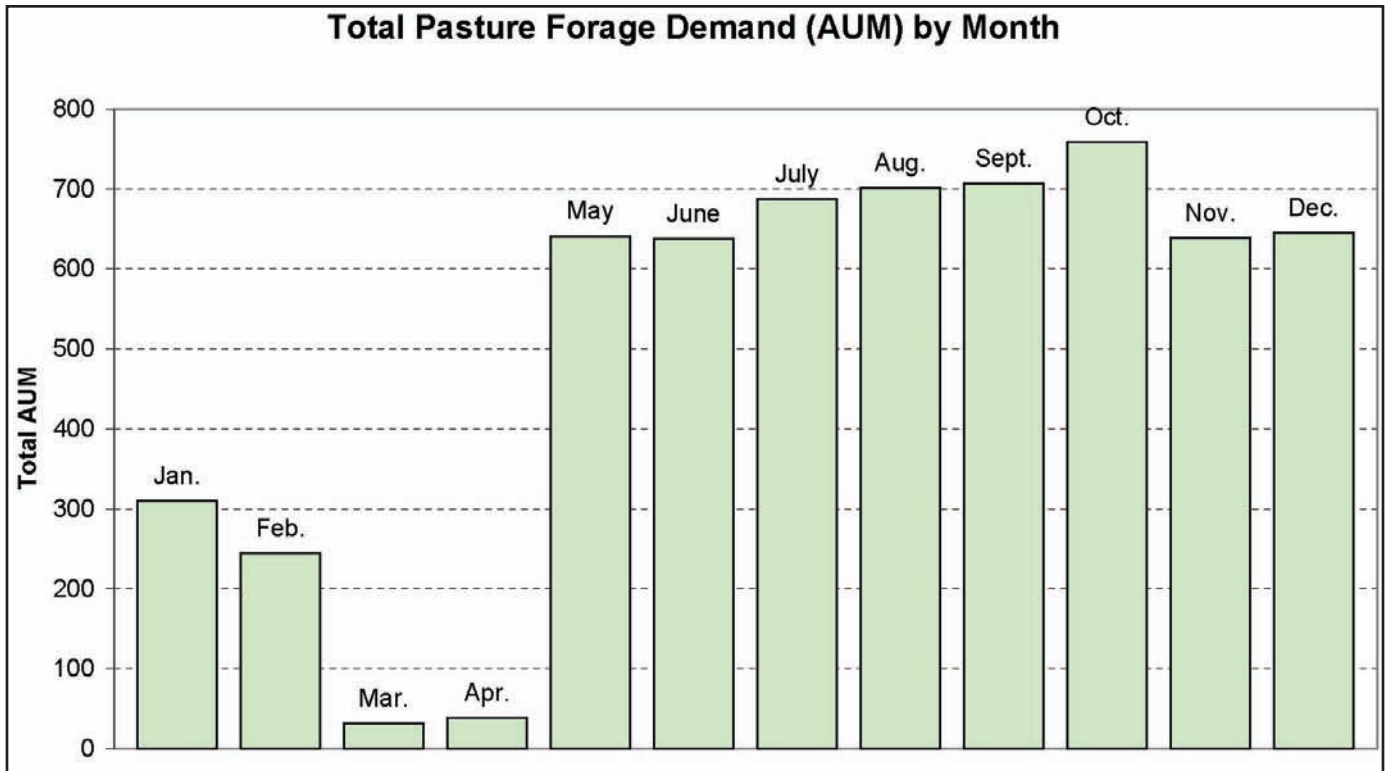
Total Pasture Forage Demand (AUM) by Month

Figure 6. Example summary figure of total pasture forage demand (AUM) by month. This figure is located in the forage demand summary sheet.

Percent of Total Pasture Forage Demand (AUM) by Livestock Class

Legend:
- Cow-calf pairs
- Dry cows
- Bred heifers (replacement 18-24 months)
- Yearling heifers (replacement 12-17 months)
- Heifer calves (replacement 4-12 months)
- Weaned steer/heifer calves (4-12 months)
- Yearling steers/heifers (12-17 months)
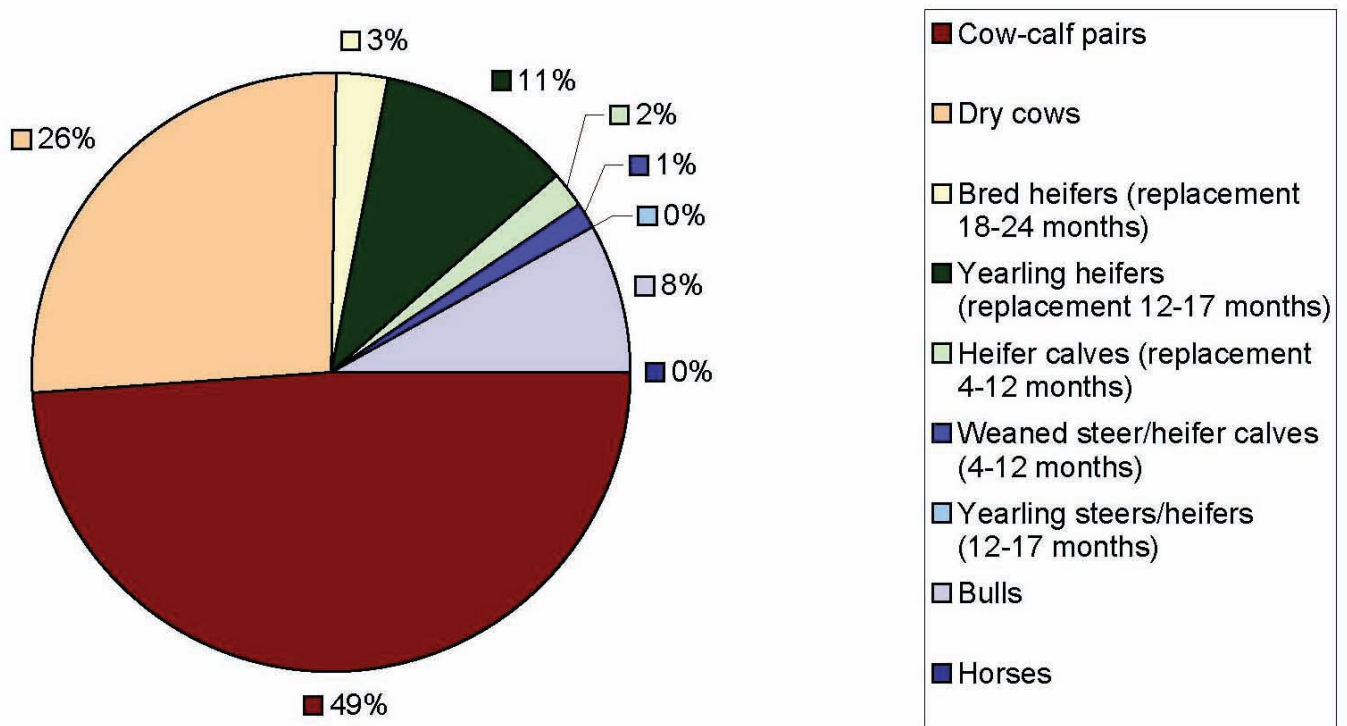- Bulls
- Horses

Figure 7. Example summary figure of total pasture forage demand (AUM) by livestock class. This figure is located in the forage demand summary sheet.

Additional Notes for the Grazing and Hay Records Spreadsheet

- When the spreadsheet template is opened, a dialog box appears that warns about macros. Always click the "Enable Macros" option.

- For some users when the spreadsheet is opened, a warning dialog box may appear and state: "Macros are disabled because the security level is set to High and a digitally signed Trust Certificate is not attached to the macros". To avoid this, click on "Tools," then "Macro" and then "Security." Check the "Medium" security level. This will allow the macros to run properly and only applies to the spreadsheet copy you are working on.

- Cells that contain formulas are protected (read-only) which means they cannot be accidentally over-written. Modifications to any of the formulas can be made by removing the worksheet protection (click on "Tools," "Protection" and "Unprotect sheet"). However, modifications that alter some of the macros and links to the summary sheets could result in errors or certain features becoming disabled.

- Dates "In" and "Out" of pastures should be entered inclusively. For example, if a Cow-calf pair herd was moved from Pasture 1 into Pasture 2 on 15-June; the "Date Out" for Pasture 1 is 15-June and the "Date In" for Pasture 2 is 15-June.

- Calculated values that appear in red indicate a negative balance of AUMs and that the actual stocking rate for that pasture was greater than planned.

- Many calculated values on the individual pasture and summary sheets are rounded, with the level of rounding dependent on the unit. Animal unit days/acre (AUD/ac) for example, is rounded to the nearest whole number.

- On the *Seasonal Distribution* graph summary page, the dates for the current year should be entered in cells P4 and Q4 for the graph to work properly.

- Multiple grazing events for an individual pasture must be entered chronologically for them to be properly graphed on the *Seasonal Distribution* graph summary.

- Individual pasture sheets must be used consecutively (no blank sheet(s) between pastures) for the *Seasonal Distribution* graph to work properly.

- The basis for an animal-unit day (AUD) is 26 lb of forage intake. When hay is fed as a supplement while grazing in a pasture, the AUM equivalent of that fed hay is subtracted from "Used" AUM for that pasture.

- The basis for an animal-unit month (AUM) is 790.4 lb of forage intake. This is calculated from 26 lb times 30.4 days (the average number of days in a month).

- The summary sheets will only correctly calculate figures using dates of the current year entered (calendar-year basis). For pastures that are being grazed from one calendar year to the next, the user will need to end the grazing event on Dec. 31 of the current year and begin a new grazing record file for the new year.

- For the *Drylot Fed Hay* summary sheet, the livestock class must be selected from the drop-down list.

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