Feeding Through Drought in Montana
Supplementing vs Dry Lotting

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1) When grass is green and growing in the spring, summer and fall, use the take half/leave half rule and shoot for 50% or less utilization to encourage continued root growth and forage production. Rotate pastures prior to 50% utilization.

2) When grazing dormant pastures, there are three trigger points that tell you when to move:

A) When you reach a 70-80% utilization average across grass varieties and parts of the pasture.
B) When grass stubble height has fallen to two inches.
C) If you can see 50% soil when you look straight down with no rocks, rooted vegetation or loose litter, you have dropped below 50% cover.

3) Once you reached any of the above thresholds in pasture, pastures should not be grazed anymore even when dormant.

4) Once all pastures have reached any of these thresholds, it is more efficient to dry lot ewes and protect range resources.

A) Spring bunch grass growth depends on buds formed in the fall. If fall grazing is too severe, you will get almost no spring growth even if precipitation is good.
C) Once you drop below 50% cover, wind erosion accelerates and pastures have difficulty recovering during rain events.
D) *These are not grazing goals to shoot for, but critical thresholds you should not cross to protect range for future generations.*

5) If hay or other harvested feed is lacking to properly dry lot sheep, you will seriously need to consider selling some or all your stock. Selling older stock first, sending ewe lambs to a feedlot for the winter and ultra-sounding for pregnancy are good management tools to reduce pressure on range resources through the fall and winter and reduce feed needs for dry lotting on the ranch.

6) A great resource out of Australia on this topic and drought management in general for sheep can be found at: https://www.feedinglivestock.vic.gov.au/wp-content/uploads/2019/03/Sheep-drought-feeding-guide.pdf

Feeding Through Drought in Montana
Grazing Stubble and Feeding Straw

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1) With lack of hay in Montana this year, many producers will be grazing standing crop, grazing stubble or feeding straw.

2) **Grazing Standing Crop**-Much of the feed value of droughted-out wheat is the grain. You are basically feeding a highly volatile grain starch with some lower quality straw. The only thing keeping the sheep from eating too much grain are the awns on the seed heads that slow down consumption. Ideally, there will be enough leaf material available to balance the grain load and keep the sheep from becoming acidotic. Vaccinating sheep for Enterotoxaemia is a must is this situation and feeding a good mineral will also be essential due to the high phosphorus content of grain and low calcium level of available forage.

3) **Grazing Stubble**-To measure grain on the ground left in stubble, build a wire frame that is twelve and half inches by twelve and half inches square. Randomly drop this frame on the ground in twenty spots across the field and count the grains in each frame to get an idea of usable grain residual. You have roughly 90lbs of grain per acre if you have the following number of grains by crop: wheat and oats 28 grains per square, barley 25 grains per square, field peas 5 grains per square and chickpeas 5 grains per square. On an irrigated barley field we lease, I averaged 53 grains per frame. (53/25)=2.12*90=191lbs of barley per acre. At the current price of $13/hundred for feed barley, the lease is worth $24.83/acre this fall. Digestibility of stubble grazing falls about one percent per week as the finer leaf materials start to weather and degrade. If you have multiple crops available, it is recommended to graze canola first, followed by any peas and save the cereals for last as they hold up better. https://www.wool.com/globalassets/wool/land/drought-resources/accordion-1/feeding-and-managing-sheep-in-dry-times.pdf

4) **Feeding Straw**-Straw is a good roughage source for sheep when used with a protein supplement, blended with better quality hay or simply offered free choice when lot feeding to keep ewes busy. Barley straw is best, followed by oat straw and then wheat straw. One cautionary note is to limit straw intake prior to shearing and several weeks prior to lambing as straw tends to slow down passage rate of feed and build up in the rumen. From personal experience, you may end up with situation prior to lambing where the ewes cannot consume enough feed and develop pregnancy toxemia or have difficulty pushing during labor due to an impacted rumen. You can maintain dry, mature sheep on a straight ration of straw and grain or grain hay with a good mineral package if needed, however lambs and producing ewes need additional a better quality forage.

5) **Ammoniating Straw-**Adding urea to straw to improve the protein level will only be of benefit to you if you also provide an energy source to feed the rumen microbes so they can fully utilize the urea. Straw is extremely low in energy and energy is generally the limiting nutrient during drought. To treat a large stack of straw, the Kansas State Extension Service has a good video of the process and safety precautions using anhydrous ammonia and can be found at: https://www.youtube.com/watch?v=-JtjJb-umpk.

To add urea straw bales on a small scale, dissolve twenty-two pounds of urea and four point four pounds of sulphate of ammonia in fifty-three gallons of water. You will need to weigh a few bales so that you can calculate the correct volume of urea solution per bale. Lay the bales on their side and pour the mixture over them at rate of twelve gallons per forty-five pounds of straw. Using ammonia or urea will add about three percent protein equivalent to the value of the straw, so it is not a magic bullet to convert it to premium hay.

Molasses or other liquid feed supplements could also be added to straw but can be expensive and impractical to treat whole bales. These products make a great addition to a TMR or total mix ration where the straw is ground and combined with grain and other available feed products to make a complete ration for the animal. The addition of these products also reduces dust which be an issue when feeding straw based diets during drought.

Feeding Through Drought in Montana
Southeast Montana Range Supplement Options

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Below are some supplement options for wintering 165lb, 2nd trimester ewes on Southeastern Montana range. You can access the MSU Sheep Ration program at https://msusheepration.montana.edu/Home.aspx.

	DM Lbs	CP Lbs	TDN Lbs	Ca g	P g
165lb ewe mid-gest	**3.2**	**0.3**	**1.8**	**3.65**	**3.1**
Sagebrush	0.2	0.01	0.11	0.0	0.0
Saltgrass	1.8	0.08	1.03	1.88	0.57
Alfalfa Pellet 17%	1.2	0.23	0.72	8.27	1.36
Total in ration	3.2	0.32	1.85	10.15	1.93
Pct of Requirements	100.0	105.53	103.0	278.12	62.33
Sagebrush	0.2	0.01	0.11	0.0	0.0
Saltgrass	2.3	0.1	1.31	2.4	0.73
DDGS Pellet 16%	0.7	0.21	0.56	0.19	2.89
Total in ration	3.2	0.32	1.98	2.59	3.62
Pct of Requirements	100.0	105.53	109.94	70.96	116.76
Corn	1.0	0.1	0.87	0.09	1.32
Sagebrush	0.2	0.01	0.11	0.0	0.0
Saltgrass	2.0	0.08	1.14	2.09	0.64
Total in ration	3.2	0.2	2.12	2.18	1.95
Pct of Requirements	100.0	66.4	117.67	59.65	62.92
Sagebrush	0.2	0.01	0.11	0.0	0.0
Saltgrass	2.7	0.11	1.54	2.82	0.86
Protein Tub 16%	0.3	0.05	0.22	2.04	1.36
Total in ration	3.2	0.18	1.87	4.86	2.22
Pct of Requirements	100.0	58.53	104.0	133.1	71.55
Sagebrush	0.2	0.01	0.11	0.0	0.0
Saltgrass	2.2	0.09	1.25	2.3	0.7
Cull Peas	0.8	0.2	0.66	0.62	1.56
Total in ration	3.2	0.31	2.02	2.91	2.26
Pct of Requirements	100.0	102.2	112.11	79.78	72.87

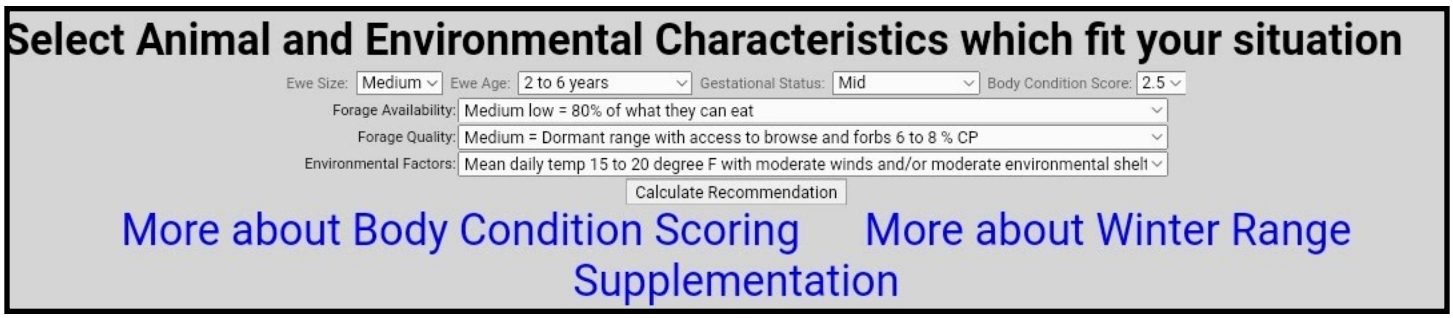
1) Alfalfa Pellet fed at a rate of 1.2lbs/hd/day balances well and will run roughly $0.20/hd/day.

2) DDGS (Distillers Dried Grains) Pellet fed at a rate of 0.7lbs/hd/day is a little low on calcium and will run roughly $0.11/hd/day.

3) Corn fed at a rate of 1lb/hd/day will not balance on either protein or calcium. Ideally save the corn for lambing in the spring. Corn will run roughly $0.095/hd/day.

4) Feeding protein tubs or blocks will run around $0.30/hd/day. However at the recommended consumption, they may not meet protein requirements on very poor forage. Tubs and blocks do offer the advantage of reduced labor and equipment costs when wintering in rough country and being able to feed in deeper snow.

5) Feeding cull peas will depend on availability, but does work well at 0.8lbs/hd/day. I do not have a current cost on supplementing with cull peas.



The winter supplementation page on the MSU Sheep Ration website gives producers the options to enter variables related to ewe size, age, production status, BCS and environmental variables related to forage availability and quality and weather conditions in drop down menus. Once the proper variables have been selected , one simply hits the Calculate Recommendation button and the program automatically selects one of six management practices: 1) Grain every other day, 2) Grain everyday, 3) Protein supplement every other day, 4) Protein supplement everyday, 5) Reduce sheep numbers and increase feed, and 6) Put all sheep on full feed.

Feeding Through Drought in Montana
Dry Lotting Ewes Through Drought

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Once a producer has reached at least one of the three grazing thresholds in all of their pastures (70-80% utilization or two inch stubble height or 50% bare ground), some tough decisions need to made with the input of your banker or CPA. Hopefully before reaching that point, you have reduced numbers as much as possible through culling, early weaning, ultra-sounding and selling dries, and sending ewe lambs to a feedlot. With input from a financial expert, a producer needs to choose one of two options: 1) Do I have enough feed resources and financial equity to dry lot my stock for many months or even a year? or 2) should I completely destock, sell everything, bank the income and use a drought deferred tax strategy to hold the money and restock when conditions improve? Every operation is different and there is no cookie cutter answer to help make this decision. Whatever your decision, make sure you get an analysis on any feed you buy or harvest.

	DM Lbs	CP Lbs	TDN Lbs	Ca g	P g
Dry Lot 165lb **Mid Gest**	3.2	0.3	1.8	3.65	3.1
DDGS Pellet	0.2	0.06	0.16	0.05	0.83
Wheat hay	2.8	0.24	1.46	1.91	2.54
Total in ration	3.2	0.32	1.79	1.98	3.63
Pct of Requirements	100.0	105.67	99.44	54.18	117.06
Crested hay	3.0	0.26	1.65	3.54	2.18
DDGS Pellet	0.2	0.06	0.16	0.05	0.83
Total in ration	3.2	0.32	1.81	3.59	3.0
Pct of Requirements	100.0	106.6	100.56	98.42	96.86
Wheat straw	1.5	0.05	0.62	1.22	0.34
Crested hay	1.3	0.11	0.71	1.53	0.94
DDGS Pellet	0.5	0.15	0.4	0.14	2.06
Total in ration	3.3	0.31	1.73	2.89	3.35
Pct of Requirements	103.13	104.7	96.11	79.29	107.98
Dry Lot **Late Gest Single** 165lb	4.1	0.44	2.4	6.25	4.8
Wheat hay	1.5	0.13	0.78	1.02	1.36
Wheat straw	1.3	0.05	0.53	1.06	0.29
DDGS Pellet	0.7	0.21	0.56	0.19	2.89
Corn	0.6	0.06	0.52	0.05	0.79
Total in ration	4.1	0.44	2.39	2.33	5.33
Pct of Requirements	100.0	100.16	99.79	37.23	111.13
Wheat	1.0	0.16	0.87	0.18	1.91
Crested hay	3.1	0.27	1.7	3.66	2.25
Total in ration	4.1	0.43	2.58	3.84	4.15
Pct of Requirements	100.0	97.66	107.29	61.4	86.56
Dry Lot **Late Gest Twins** 176 lbs	4.4	0.49	2.9	8.3	6.1
Corn	0.7	0.07	0.61	0.06	0.92
Wheat hay	3.2	0.27	1.66	2.18	2.9
DDGS Pellet	0.7	0.21	0.56	0.19	2.89
Total in ration	4.6	0.55	2.83	2.43	6.71
Pct of Requirements	104.55	111.94	97.69	29.29	110.05
Crested hay	3.2	0.28	1.76	3.77	2.32
Alfalfa hay	0.5	0.08	0.26	2.83	0.5
Corn	0.5	0.05	0.44	0.05	0.66
Wheat	0.5	0.08	0.44	0.09	0.95
Total in ration	4.7	0.48	2.89	6.74	4.43
Pct of Requirements	106.82	98.76	99.83	81.26	72.65

Looking at harvested forage available across Eastern Montana, most people will be using either wheat hay, Crested Wheatgrass hay or incorporating as much wheat straw in as they can. It will be every difficult to utilize any wheat straw in a ration fed to late pregnant or lactating twins, but can be used sparingly in rations for singles.

I wouldn't recommend feeding wheat as a grain source on top of wheat hay and would try and use either corn or a DDGS (Distillers Dried Grains) pellet.

As you can see from the rations, one of the biggest concerns using any wheat feed is the critical calcium/phosphorus imbalance. It will be imperative to feed a good quality mineral when dry lotting ewes.

One of the biggest issues facing everyone in todays ranching environment in addition to the drought and high feed costs is the lack of available labor. As producers reduce ewe numbers to match available winter feed, you consider ultra-sounding ewes, selling dries, marking single verse twin. At lambing pre-paint brand all the ewes, lot lamb the singles in larger groups and do not jug. Ewes carrying twins can be placed twenty-five in a mixing pen prior to lambing and set lambed there with only two or there jugs in each mixing pen.