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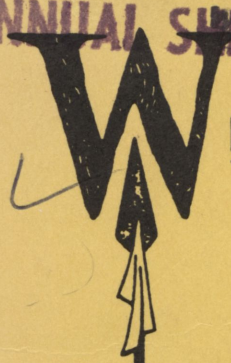
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IMPLICATIONS FOR THE WESTERN LIVESTOCK INDUSTRY

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Decisions in the public and private sector, both recently and over the past 14 years, have had major impacts on the United States livestock industry. Apparent changes in demand for beef and sheep products on the consumer side, coupled with changes in technology, production practices, and resource use have raised questions about what might be in store for livestock producers between now and the 21st century. The following paper discusses some obvious, and perhaps not so obvious factors facing livestock producers in most of the western states. It is evident that these factors will impact producers in states aside from the 17 western states, however there are some unique factors facing the western states, and the paper will focus primarily on the west.

One of the primary thrusts of this paper will be to examine the impacts of aggregate forage availability for the extensive grazing livestock industry. Because much of the forage utilized by livestock in the western states is grazed from land that has limited alternatives for agricultural production, it is apparent that the availability and usage of this forage is a key factor in the future expansion or contraction of the western livestock industry.

The United States cattle industry reached its historical numbers peak in 1974, when the January 1, 1975 USDA cattle inventory was reported at 131,826,000 head. Of that total, 67,077,000 head, or 50.9 percent of the nations cow herd was located in the 17 western states. The USDA January 1, 1989 inventory reflects that the nations cattle numbers had dropped 32,342,000 head or 25 percent in 13 years. The 1989 figure reflects 54,210,000 head, or 54.5 percent of the U.S. cow herd is currently found in the 17 western states. (Table 1)

Sheep and lamb numbers in the United States have declined persistently since reaching their historical peak of 56.2 million head in 1942. The January 1, 1975 USDA inventory reported 14,512,000 head, with 11,552,000 head or 79.6 percent located in the 17 western states. The USDA January 1, 1989 inventory reported all sheep and lambs at 10,802,100, a decline of 25.6 percent from the 1975 figure, with 8,617,000, 79.8 percent located in the 17 western states. (Table 2)

Using the 1975 cattle and sheep inventories as a base year, and converting just the reduced beef cattle and sheep to animal unit months (AUM's)¹, the state by state decline in animal units from 1975 to 1989 are reflected in Table 3. Recognizing that aggregation errors exist by using just the beef cattle and sheep rather than total cattle numbers, I am assuming that these animals are primarily grazing animals, whereas many of the cattle reported in the all cattle and calf inventory include feedlot cattle, dairy cattle, etc. The reduction of these cattle during the 14 year period probably has a greater impact on the grains industry than grazing availability, although they are obviously related. By converting the beef cattle and sheep to animal units (AU) and then converting 1 AU equal 12 AUM's, it is then

¹ 5 sheep equal 1 animal unit, 1 animal unit equals 12 AUM's.

TABLE 1: January 1 Cattle Inventory - U.S. and 17 Western States

STATES	BEEF COWS		1989 AS % OF 1975	TOTAL CATTLE NUMBERS		1989 AS % OF 1975
	1975	1989		1975	1989	
	(1000 HD)	(1000 HD)	(PERCENT)	(1000 HD)	(1000 HD)	(PERCENT)
Arizona	372	263	70	1,170	880	75
California	1,097	925	84	5,200	4,700	90
Colorado	1,050	775	74	3,375	2,750	82
Idaho	721	520	72	2,150	1,620	75
Kansas	1,978	1,450	73	6,400	5,900	92
Montana	1,647	1,324	80	3,340	2,350	70
Nebraska	2,374	1,697	71	6,900	5,400	78
Nevada	338	231	68	657	490	75
New Mexico	714	578	81	1,720	1,350	79
North Dakota	1,235	832	67	2,635	1,600	61
Oklahoma	2,713	1,893	70	6,500	5,200	60
Oregon	617	573	93	1,470	1,390	95
South Dakota	2,129	1,500	71	4,950	3,480	70
Texas	6,890	5,445	79	16,600	13,700	83
Utah	349	315	90	900	770	86
Washington	403	359	89	1,420	1,300	92
Wyoming	<u>806</u>	<u>670</u>	<u>83</u>	<u>1,690</u>	<u>1,330</u>	<u>79</u>
TOTAL:	25,433	18,356	72	67,077	54,210	81
U.S. TOTAL:	45,421	33,669	74	131,826	99,484	76

Cattle Inventory Reports, USDA

TABLE 2: January 1 Sheep Inventory - U.S. and 17 Western States

STATES	ALL SHEEP AND LAMBS		1989 AS % OF 1975
	1975	1989	
	1000 HEAD		PERCENT
Arizona	510	284	56
California	1,100	940	86
Colorado	990	825	83
Idaho	595	287	48
Kansas	200	262	131
Montana	710	568	80
Nebraska	280	169	60
Nevada	151	87	58
New Mexico	578	516	89
North Dakota	315	164	52
Oklahoma	89	136	153
Oregon	415	475	115
South Dakota	792	590	75
Texas	2,688	1,900	71
Utah	697	503	72
Washington	92	74	80
Wyoming	<u>1,350</u>	<u>837</u>	<u>62</u>
TOTAL - 17 WESTERN STATES:	11,552	8,617	75
TOTAL - UNITED STATES:	14,512	10,802.1	74

Sheep Inventory Reports, USDA

TABLE 3: Additional Animal Unit Months (AUM's) of feed available in 1989 Relative to 1975 in the 17 Western States Due to Reduction in Sheep and Cattle Numbers.

STATES	ADDITIONAL AUM'S FROM SHEEP REDUCTION*	ADDITIONAL AUM'S FROM BEEF CATTLE REDUCTION	TOTAL
	1000 AUM'S	1000 AUM'S	1000 AUM'S
Arizona	542.4	1,308	1,850.4
California	284.0	2,064	2,448.0
Colorado	396.0	3,300	3,696.0
Idaho	793.2	2,412	3,205.2
Kansas	-148.8	6,336	6,187.2
Montana	340.8	3,876	4,216.8
Nebraska	240.0	8,328	8,390.4
Nevada	153.6	1,284	1,437.6
New Mexico	148.8	1,632	1,780.8
North Dakota	362.4	4,836	5,198.4
Oklahoma	-112.80	9,840	9,727.2
Oregon	-144.0	528	384.0
South Dakota	484.8	7,476	7,960.8
Texas	1,891.2	17,340	19,231.2
Utah	465.6	408	873.6
Washington	42.2	528	570.2
Wyoming	<u>1,231.2</u>	<u>1,632</u>	<u>2,863.2</u>
TOTAL - 17 STATES:	7,097	72,924	80,021

* 5 sheep equal 1 animal unit; 1 animal unit equals 12 AUM's.

possible to roughly compare the amount of grazing and winter feed required to maintain the grazing livestock.

Evidence that excess grazing capacity currently exists in the western states may be gleaned from aggregate data. Table 3 reflects the impact of reduced grazing animals. The reduction from 1975 to 1989 in sheep numbers (2,935,000) and beef cattle numbers (7,077,000) would indicate that 80,021,000 fewer AUM's are needed in 1989 relative to 1975. This includes both the summer grazing and the supplemental winter feed, primarily hay and aftermath grazing from privately owned land.

Another factor that is mostly unique to the west is the fee grazing on public Forest Service (FS) and Bureau of Land Management (BLM) managed land. Table 4 reflects the acres and percentage of federal land in each of the western states. Note that, excluding Alaska and Hawaii, 90 percent of the federally owned land in the United States is located in the 17 western states.

Tables 5 and 6 reflect the total amount of public grazing on BLM and FS land. These tables reflect the total public grazing available and actually used in 1986 on public Forest Service and BLM lands in the western states. In 1986 the BLM had 2,243,548 AUM's (21.5 %) of permits in a non-use category. The Forest Service reported 1,118,673 AUM's (11.7 %) in non-use. The FS figure may be suspect and is likely much higher due to the method the FS uses to compile non-use. It should also be recognized that non-use figures on public grazing is somewhat like unemployment figures, there will always be some non-use. Regardless, in 1986 the combined 3,362,221 AUM's of non-use grazing of public lands in the west would support an additional 672,444 AU's for a 5 month grazing season.

In addition to the public grazing that is currently under-utilized, Conservation Reserve Program (CRP) acres loom on the horizon, providing long run uncertainty for the grazing livestock industry and operators in the west. Those acres that have been accepted into the CRP program are, in general, marginal cropland acres. Never-the-less, they have been farmed and cropped, and are able to produce superior forage when compared to most of the existing grazing land. In the process of converting to CRP acres, the government has aided producers in planting domestic grasses that will outyield the natural grasslands that boarder the CRP acres. Most of the CRP acres will be coming out from under the 10 year CRP program in 1997-9. Obviously, the opportunity cost of keeping it in a conserving or grassland status at the time the CRP contract terminates will ultimately determine its use. Assuming that we will still be struggling with excess capacity in the grains industry¹ as we move into the next century, it is my contention that the majority of CRP acres will remain in a grasslands status rather than return to grain production.

As shown in Table 7, as of July 1, 1988, there are 18,603,574 acres (66 percent of the U.S. total) under CRP contract in the 17 western States.

¹ Excess capacity in the grains industry has been the overriding production problem in the United States in this century, excluding short run aberrations. With the application of emerging biotechnology, this situation is unlikely to change in the foreseeable future. This should be the topic of another paper, however.

TABLE 4 : Comparison federally owned land with total acreage of Western States - 1986.\a

<u>State</u>	<u>Acreage owned by Federal Government</u>	<u>Acreage not owned by Federal Government</u>	<u>Total acreage of State</u>	<u>Percent owned by Government</u>
Arizona	31,672,884	41,015,116	72,688,000	43.574
California	46,322,958	53,883,762	100,206,720	46.227
Colorado	24,188,875	42,296,885	66,485,760	36.382
Idaho	33,759,327	19,173,792	52,933,120	63.777
Kansas	581,100	51,929,620	52,510,720	1.107
Montana	28,236,115	65,034,925	93,271,040	30.273
Nebraska	714,186	48,317,494	49,031,680	1.457
Nevada	59,814,558	10,449,762	70,264,320	85.128
New Mexico	25,870,579	51,895,821	77,766,400	33.267
North Dakota	1,942,214	45,510,266	44,452,480	4.369
Oklahoma	867,380	43,220,300	44,087,680	1.967
Oregon	30,031,220	31,567,500	61,598,720	48.753
South Dakota	2,733,177	46,148,743	48,881,920	5.591
Texas	3,335,479	164,882,121	168,217,600	1.983
Utah	33,568,979	19,127,980	52,696,960	63.702
Washington	12,459,162	30,234,598	42,693,760	29.183
Wyoming	31,431,416	30,911,624	62,343,040	50.417
U.S. TOTAL:\b	727,112,975			32.012

\a Public Land Statistics - 1987, U.S. Department of the Interior, Bureau of Land Management.

\b If you exclude Alaska and Hawaii, 90 percent of Federally owned land is in the 17 Western States.

TABLE 5: Animal Unit Months (AUM's) of Bureau of Land Management (BLM) Federal Grazing Permits - Active and Non-Use, 1986.

State	Section 3\ a		Section 15\ b		Active	Total Non-Use
	Active	Non-Use	Active	Non-Use		
Arizona	492,325	69,013	150,028	15,279	642,353	84,292
California	230,455	38,700	180,200	6,458	410,655	45,158
Colorado	440,722	140,620	48,194	2,778	488,916	143,398
Idaho	1,031,599	240,786	33,137	5,879	1,064,735	246,665
Montana	957,676	299,235	230,016	10,249	1,187,692	309,484
Nevada	1,627,474	459,337	45,520	13,420	1,672,994	472,757
New Mexico	1,321,174	205,551	233,397	7,768	1,554,571	213,319
Oregon	852,680	77,479	83,403	15,861	936,083	93,340
Utah	942,510	260,835	-0-	-0-	942,510	260,835
Wyoming	<u>1,080,784</u>	<u>354,862</u>	<u>448,651</u>	<u>19,438</u>	<u>1,529,435</u>	<u>374,300</u>
Totals	8,977,399	2,146,418	1,452,546	97,130	10,429,945	2,243,548

a/ Section 3 - An authorization that permits the grazing of a specified number and class of livestock on a designated area of grazing district lands during specified seasons each year; a grazing permit. (Section 3 of the Taylor Grazing Act)

b/ Section 15 - An authorization that permits the grazing of livestock on public lands outside the grazing districts during a specified period of time; a grazing lease. (Section 15 of the Taylor Grazing Act)

TABLE 6: Animal Unit Months (AUM's) of US Forest Service Grazing Permits - Active and Non-use, 1986, Western States.

<u>STATE</u>	<u>ACTIVE</u>	<u>NON-USE</u>	<u>TOTAL*</u>
Arizona	1,235,242	196,990	1,432,232
California	585,348	72,302	657,650
Colorado	944,536	175,599	1,120,135
Idaho	936,488	154,113	782,375
Kansas	44,629	30	44,659
Montana	521,774	112,783	634,557
Nebraska	132,202	7,818	140,020
Nevada	295,838	86,581	382,419
New Mexico	820,792	137,573	958,365
North Dakota	449,181	115,657	564,838
Oklahoma	23,215	5,106	28,321
Oregon	477,469	168,170	645,639
South Dakota	447,335	30,713	478,048
Texas	35,166	36,579	71,745
Utah	659,973	52,944	712,917
Washington	111,803	16,139	127,942
Wyoming	<u>709,886</u>	<u>57,782</u>	<u>767,688</u>
WESTERN STATES TOTAL:	8,430,877	1,118,673	9,549,550
U.S. TOTAL:	8,426,260	1,526,498	9,952,758

*/ This figure does not reflect total grazing capacity, but only currently listed permitted AUM's. Actual grazing capacity is somewhat above this, but data is not readily available from the Forest Service.

TABLE 7: Conservation Reserve Program (CRP) Contracted Acres in the 17 Western States as of January 2, 1989.*

STATE	CRP ACRES
Arizona	0
California	170,479
Colorado	1,748,117
Idaho	714,307
Kansas	2,385,453
Montana	2,264,770
Nebraska	1,159,688
Nevada	2,343
New Mexico	468,309
North Dakota	2,175,123
Oklahoma	1,017,301
Oregon	497,622
South Dakota	1,222,860
Texas	3,457,007
Utah	227,359
Washington	870,230
Wyoming	222,606
Total 17 Western States:	18,603,574
U.S. Total	28,130,290

*Agricultural Stabilization and Conservation Service (ASCS), USDA

These figures, of course, are not final, as additional sign-ups are planned in order to reach the 45 million target^b acres by 1990. What are the implications to the extensive range livestock industry when these acres come back into commercial production, given my assumptions that the majority of the acres will not return to grain production? A cursory search of the literature does not reveal any economic analysis of the effects on agriculture and related industries of the similarly structured Soil Bank program of the 1950's. Assuming that at the time the CRP acres come out from under contract in the late 1990's, 5 acres would support 1 animal unit. This would add approximately an additional 44,648,578 AUM's to grazing in the western states.

Given the above outlined scenario:

- a. sharply reduced grazing livestock numbers in the last 13 years,
- b. currently under-utilized public fee grazing,
- c. continued surplus problems in the U.S. grains industry,
- d. substantial amounts of CRP grassland acres returning to commercial production,

^bIt is highly unlikely that the original 45 million acre target will be achieved. This would require an additional 16+ million acres contracted in 1989.

what are some likely impacts on the extensive range livestock industry as we move into the 21st century?

Obviously, in order to make learned projections about what might occur on the cost side of a single (although major) input of the grazing livestock industry, some erudite assumptions must be made relative to the demand (price) of the products utilizing this resource, plus projections of what will happen to costs of the other inputs into the livestock production process. I will not attempt to make that analysis in this paper. I will assume that, in real terms, sale prices of livestock plus the other inputs - interest, labor, feed grains, etc., will remain equal to the last 5 years average of sale prices and inputs. I also assume that beef cows and sheep numbers will grow less than 6% by 1998.

What then, is likely to happen? I believe that ranch land prices, in real terms will decline during the years 2000 - 2005 from those existing in the early and mid-1990's. Assuming other things being equal, this will not be a sharp drop, such as occurred from 1981 to 1987.^c Because of current and anticipated excess grazing capacity, I don't believe that ranch sales will approach within 20 percent of the price peaks of 1979-83 (in real terms) in this century. Thus ranchers will continue to struggle, and it is unlikely that land appreciation will have much impact on land values and thus the unearned income that many buyers have anticipated when buying ranch land during most of this century (excluding the early 1920's, early 1930's and early 1980's).

The upshot of this analysis is that the reduction of grazing cattle and range sheep numbers, coupled with the CRP program, lays the foundation for continued low land values for grazing land in the west. Substantial grazing land will be available which will lead to more cow-yearling operations in the coming years. Additionally, barring a change in the federal policy relative to the CRP acres, livestock producers should anticipate an increased demand and higher prices for breeding cows in the late 1990's as CRP land comes out from under contract. This could lay the groundwork for an expansion of the cattle herd to levels of 110 million head by the year 2005, about what the cow herd was in 1980.

^c In Wyoming, ranches that sold for \$2,500 per cow/unit in 1982 (Wyoming Farm/Ranch land Market, Varvig & Collins), are now selling for \$1,400 - \$1,600 per cow/unit, with some ranches with sizeable public grazing permits, dropping lower.