Drought and Low Cattle Prices: Hardship for New Mexico Ranchers

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Overall New Mexico received about 27% above average precipitation for the 1984–1993 period, making it one of the wettest periods on record (Table 1). Data from experimental ranges in the state indicate all this extra rain nearly doubled forage production during the early 1990s compared to the early 1980s. At the same time superior forage conditions prevailed, cattle prices ranged between $85-100/CWT compared to the $60-65/CWT bottom in 1986. However nothing lasts forever. This historically has been quite true for cattle prices and climatic conditions in New Mexico. During the summer of 1994 severe drought (less than 50% of average rainfall) returned to southern New Mexico and at the same time cattle prices dropped about 25% from the 1992–93 peak. Both conditions caught most New Mexico ranchers off guard. Many ranchers were forced to liquidate 50% or more of their herd during the summer and fall of 1994 due to lack of forage. New Mexico beef cattle numbers in late 1993 were about the same as the 10 year average (USDA 1993).

The question arising from all this is whether drought and low cattle prices were predictable and what the future may hold. Long term climatic data dating to the early 1900s from the USDA-Jornada Experimental Range near Las Cruces and other locations in the state show about 3 years out of every 10 are characterized by less than 75% of average growing season precipitation (USDA 1987, Betancourt et al. 1993). In 2 of these years less than 60% of normal precipitation can be expected. Another phenomena is that 20 year periods of above average precipitation tend to alternate with 20 year periods of below average precipitation. The 1910–1930 and 1950–1970 periods were abnormally dry while the 1930–1950 and 1970–1990 periods were abnormally wet. Archeological evidence going back 1,000 years supports more recent climatological data in showing that most of New Mexico is characterized by alternating wet and dry periods that last 20–25 years. On this basis it appears probable that the next 15–20 years will receive below average precipitation. An important aspect of past climatological data is that dry years tend to cluster together with a typical pattern of 2 dry years followed by an average year and then another dry year before the drought finally breaks. Long term climatic data from south Texas validate the pattern I've described for New Mexico (Norwine and Bingham 1985).

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Table 1. Precipitation in New Mexico by region for the 1984 through 1993 period.

Year	Region - New Mexico[1] South-west	North-west	Central mountains	North-east	South-west
	inches				
1984	16.9	12.3	20.9	20.2	20.5
1985	15.9	13.5	22.0	20.1	17.1
1986	17.5	16.7	23.4	22.4	24.3
1987	12.1	12.5	19.4	17.9	16.0
1988	14.4	12.3	21.1	19.1	15.3
1989	8.8	6.8	13.4	15.0	10.0
1990	14.9	14.3	20.3	16.3	13.1
1991	17.4	11.8	23.0	23.1	20.2
1992	14.8	13.3	18.1	16.3	16.2
1993	12.0	12.7	17.1	16.3	11.2
10 year average	14.5	12.6	20.1	18.7	16.4
Long term average	10.5	10.4	16.2	14.8	13.0
% departure from average in 1984-1995	+37.4	+21.9	+23.8	+25.7	+26.6

**Overall New Mexico received about 27% above average precipitation for the 1984–1993 period.

[1]Data are National Oceanic and Atmospheric Administration annual reports.

Presently Federal Reserve Chairman Alan Greenspan is running a tight monetary policy. Based on reports in the "Western Beef Producer" continued increases in cattle numbers in the plains states are likely into 1996. Most commodity reports indicate no real year over year improvement in beef cattle prices until 1997 or 1998 although some increase above the present $66/CWT for live cattle is likely in the near term.

Cattle price lows have generally coincided with drought periods in New Mexico. Historically the cycle in cattle prices has involved about 6-7 up years followed by 3-5 down years (Holechek et al. 1994a). Wars and/or a loose monetary policy (1970s) by the Federal Reserve have increased cattle prices while peace and tight money (1980s) have generally depressed cattle prices. In other words cattle ranchers are favored by inflation. Under the above scenario it would seem prudent for New Mexico ranchers, particularly those in the southern part of the state and with high debt levels, to avoid loading up on cattle under the hope that both rainfall and cattle prices will greatly increase in the next few years.

Considerable research reviewed by Vallentine (1990) and

Holechek et al. (1995) shows rangelands conservatively stocked produce much more forage during and after drought than those receiving heavy use. In New Mexico this has been documented on the College Ranch (Holechek et al. 1994b) and the Fort Stanton (Pieper et al. 1991) experimental ranges.

Generally cattle ranching in New Mexico and other western states has been characterized by cycles of boom and bust. After 3 or 4 years of low cattle prices and drought, most ranchers are understocked when rainfall conditions improve. This is due to low availability of breeding females and the high prices required to replace the breeding herd with animals of reasonable quality. Lack of credit generally restricts ranch expansion during the bottom as cattle cycle and business cycle busts generally coincide (Holechek et al. 1994a). The initial 3–5 years after drought result in considerable range recovery but eventually higher rainfall and cattle prices restore rancher confidence and optimism. This causes many ranchers to maximize their herds at the very time when they should be reducing them. The federal government serves as an accomplice in this game of brinkmanship. USDA programs provide ranchers with emergency feed in drought years and cost sharing (50–70%) for range improvement and development projects. These programs encourage maximal stocking and heavier capitalization of the ranch with watering points, fence, brush control, etc., than would otherwise occur. Most of this increase in capitalization occurs towards the end of the expansion phase of the business cycle when credit is readily available and cattle prices are high.

During this process there is a general failure to realize that under arid conditions, heavy ranch capitalization and the associated stocking rate increases are nearly always losing propositions. Not only does the rancher end up out of grass and loaded down with debt and cattle when the economy goes into recession but there are other subtleties that further undermine the heavy capitalization approach. After a forced sell off during drought its very difficult to find livestock that will as efficiently use the range as those born and reared on the area. Livestock unfamiliar with a ranch must gain experience with both new terrain and forage species. This lack of experience undoubtedly results in lower calf crops, lower calf gains, and higher death loss than would otherwise occur. Another serious problem is that new animals can and often do carry disease that quickly infects what remains of the former breeding herd.

Even in years of good rainfall research on the Fort Stanton Range and the College Ranch in southcentral New Mexico shows higher calf crops (5–15%) and weaning weights (25–50 lbs) from conservatively stocked pastures compared to those more heavily grazed (Holechek 1992, Pieper et al. 1991). Economic analyses indicate the increased cattle performance on the conservatively stocked pastures more than offset the benefits of lower fixed costs and increased use of forage that occur under heavy stocking (Holechek 1992, Holechek 1994).

Under the best of conditions arid land ranching is a low reward/high risk proposition compared to alternative investments. At the start of the last cattle cycle in 1985 when New Mexico ranch values and cattle prices were at a bottom, a 1 million dollar investment in a Chihuahuan desert cattle ranch would have returned about $810,000 by 1994 ($400,000 from cattle and $410,000 from ranch appreciation). In comparison the S&P 500 stock index would have returned $1,871,000 while the return from 30 year U.S. treasury bonds at 7.5% interest would be $1,061,000.

I recognize that profit is not necessarily the main reason why people buy cattle ranches. However the various shakeouts in the ranching industry such as in the mid-1980s when about 50% of the ranches in New Mexico were sold demonstrate the fallacy of sinking all discretionary funds into the ranch and/or using leverage to finance range development and improvement projects to amplify returns from livestock. A better approach would be to place discretionary funds in the stock and bond markets so assets and income would be diversified. Between January 1 and December 31, 1995, the S&P 500 stock index was up about 33% and 30 year U.S. treasury bonds were up 15% while live cattle prices were down 15%.

Historically the stock market in the United States has averaged 10% return per year. New Mexico ranches have yielded about a 3% average annual return on capital investment but there have periods such as World War I, World War II and the 1970s when returns were 5–10%. Generally cattle prices and ranching returns have been more volatile than returns from the S&P 500 stock index. After careful screening of various management alternatives using a best case scenario I have found it nearly impossible to find a specialized grazing system or a brush control practice that will equal an S&P 500 index mutual fund if the manager had a 10–30 year time horizon (Holechek 1992). When adjustments are made for risk and liquidity the risk/reward ratio's become even more unfavorable for range improvements compared to the stock market. An investor who selected a high growth mutual fund such as Fidelity Magellan or a foreign stock index fund would have received a 14–18% return with less volatility than returns from most range improvements (Table 2). While I recognize some ranch managers might select a grazing system or brush control practice for reasons other than financial return, I believe that responsible range consultants must make sure that ranchers they advise understand their investment alternatives.

In most of the western United States a low input approach to ranching and range management will provide the most profit with the least risk. It also has a lot of benefits for soil, vegetation, and wildlife. Under this strategy a rancher applies a conservative stocking rate, a season long or simple rotation grazing system, and a 2–4 mile spacing of watering points (Holechek 1992). The focus is more on the animal side of the equation with breeding, health care and supplemental feeding programs receiving emphasis. Rotation of access to watering points can be used to minimize sacrifice areas and improve distribution.

Table 2. Average annual percent returns for various types of stock and bond investments in the 15 year period from 1978-1993.

Average Annual 15 Year Return	
Category	Return
Stocks[1]	%
S&P 500 index funds	16
Aggressive growth funds	13
Growth funds	14
Growth income funds	13
International equity funds	15
Balanced funds	13
Metals funds	13
Utilities funds	11
Bonds[1]	
Government bond funds	8
Corporate bond funds	11
High-Yield (junk) funds	11
Money market funds	8
Municipal bond funds	8
Cattle Ranches[2]	
250 AU - Chihuahuan Desert	
Cattle Ranch[1]	1.3 % return on cattle + (-3.0 to -4.0% return on ranch purchase value)
250 AU - Shortgrass Prairie	
Cattle Ranch	3.6 % return on cattle + (-0.5% return on ranch purchase value)

[1]Source: Williamson 1995.
[2]Sources: Holechek 1992, Holechek and Hawkes 1993, New Mexico Agr. Exp. Sta. Reports.

Areas away from water and with rugged terrain that are poorly used in most years serve as a forage reserve in drought. Water can often be hauled if necessary to use this reserve. High risk, active range management practices such as fertilization, brush control or seeding would be avoided or reserved for extraordinary situations where a seasonal bottleneck in forage supplies severely compromises the efficiency of the ranch or added income from wildlife or recreation justify the practice. Minimal investment in infrastructure reduces maintenance and depreciation costs and frees up capital that can be used for purchase of feed in drought or invested in liquid assets such as stocks and bonds. When drought and low cattle prices strike, our low input rancher will have the forage and capital reserves to avoid a forced livestock liquidation at giveaway prices and later repurchase at what seems like highway robbery. I consider development and application of financial skills a crucial part of low input ranching.

The next few years could be quite challenging to ranchers in New Mexico and several other parts of the West. Many forces are coming together that probably will make the 1990s a time of transition for the western ranching industry. We are in a period when traditional ranching operations are becoming less profitable due to huge increases in world beef supplies and rising production costs (Holechek and Hawkes 1993, Workman and Evans 1993). At the same time demand is increasing for non-traditional rangeland products such as wildlife for viewing and hunting, dude ranching, homesites, pack trips, non-traditional animals (ostriches, llamas, bison, rodeo livestock) and native plants for xero-scaping. At no time does enterprise and income diversification along with risk aversion appear more important for survival of western ranchers than at present. Ranchers with sophisticated financial skills will have a tremendous competitive advantage over those who try operate without this kind of knowledge.

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