

# Case Study: El Niño Blizzard of 1997

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During the summer of 1997 drought conditions plagued much of the Rocky Mountain Region. Especially hard hit was the eastern and southeastern segments of the state known as the shortgrass prairie. This region consists of small communities with aged populations mostly of rangeland ranchers and farmers. The area is dominated by sandy soils and warm-season grasses, and normally receives only 5-10" of annual precipitation. Ranchers and farmers use irrigation only when available. Snow cover only happens once every 5-6 years in any permanent cover. County and local governments are small, poorly funded, and far between.



On October 25, 1997 snow began to fall across Colorado in surprising amounts with winds maintained at 25-40mph. Towns along the mountainous areas normally have snow plans and snow removal equipment. (71% of Colorado's population resides in the seven counties along the Front Range surrounding Denver. This area reaches from Fort Collins to Colorado Springs). The storm continued for over three days.

Thirty-seven inches of snow accumulated in an area east and south of Pueblo, Colorado, stretching across 22 Colorado counties, five Kansas counties, three Oklahoma counties, and three New Mexico counties. Snow accumulated on flat surfaces, and due to winds all east-west

roads had drifts that ranged from eight to twelve feet tall and often a mile wide. County and state road equipment in the region normally dealt with sand and tumbleweed blockages. Operators were unfamiliar with snow conditions and within six hours had over 80% of road equipment stuck in drifts.

Power distribution infrastructure was challenged with ice and the winds rapidly shut down the availability of electricity across over 24 counties. Elderly rural residents living in poorly insulated homes began trying to make their way to small local communities for help.

Agriculture in the area comprises about 14 million acres of grazing range livestock and irrigated specialty crop farms along the Arkansas River with small towns every 40-60 miles serving as business centers. The Department of Defense Pueblo Munitions Depot lies on the north end of the area with Fort Carson at the northwest corner, NORAD Cheyenne Mountain west of Colorado Springs, and Northern Command / Airbase on the southeast side of Colorado Springs.

When the blizzard hit, almost all of Colorado's heavy equipment and emergency response resources were committed to the Front Range corridor. Communities and private citizens in the east and southeast areas had limited equipment to traverse or move 32-120 inches of snow. Home heating fuel deliveries were suspended, cellular service (which was already limited in the area) was overwhelmed by metro usage traffic, and a population with an average age of 70 in rural areas began to fight for survival.

Almost 3 million cattle and 250 horses as well as about 20,000 hogs were either trapped with no access, lost, or moving across fence lines in advance of the blizzard. For two days requests for state and federal help were placed on low priority due to the needs of larger population centers.



Daily safety checks on the 158,000 chemical weapons projectiles stored at the Pueblo Munitions Depot became erratic—many of the military families lived nearby in Pueblo and Avondale, which were areas blocked by snow. Snow began to accumulate in the river drainage between the depot and housing areas and in all of the historic munitions clean-out reservoirs on the depot.

County commissioners and Extension offices began a welfare check program for children and elderly residents on farms and ranches by either phone or spot checks by neighbors. Homemakers and 4-H clubs were asked to check if people had medical needs, food and heat for at least a week. Extension educators began to format fairgrounds and schools in collaboration with school districts as information and shelters.

County road and bridge crews met with irrigation districts and large agriculture operators to assign tracked heavy equipment to open crucial roadways.

Over 200,000 cattle were missing. Extension educators paired with crop dusting pilots and Civil Air Patrol began flying location missions as soon as the wind dropped below 30 mph and the snow stopped. Most cattle herds were located and the information radioed to a sheriff's deputy collecting information at the Lamar and Pueblo Extension office. The Fort Carson Army Division offered to let Pueblo Emergency Regional Management coordinate feed drops to cattle trapped by the storm. Seven Blackhawk helicopters began loading 30–32 bales per chopper and flew them 50–200 miles into the storm area to drop to herds. Extension realized they needed to deliver almost 4,000 tons of feed daily and the Blackhawks were insufficient. About half of the counties were not checked yet. Ranchers complained that the news media was calling for interviews and their priorities were on neighbors and herds. After conferring with county commissioners and emergency managers, local Extension staff identified and contacted strategically placed ranchers in specific areas. Then Extension contacted several Denver news channels offering “exclusive interviews and footage” of storm damage. All news stations provided helicopters who not only flew Extension staff to ranches but then flew ranchers across wide regions identifying where cattle were. One news channel spent eleven hours helping ranchers stop at over 20 elderly neighbor locations for wellness checks.



A number of rural residents who were trapped were in need of life-saving medicines such as insulin. Emergency management asked state troopers to get as close as possible and then volunteer crop duster pilots landed next to sites on north-south blow-off roads to deliver medicines.

Flights identified that some stock had walked as much as 57 miles south ahead of winds and snow. Other herds had gathered in irrigation ditches and streams and were blown over and buried by snow.

Over 38,500 head of cattle and six people perished in the storm. Three local communities notified officials that their municipal water sources were slowing down or showing bacteria. Investigations showed the watersheds clogged with piles of dead livestock. The State Department of Transportation provided 127 pieces of disposal equipment to the region, and Extension organized equipment operators.

State livestock officials designated that each head must be verified for ownership (since the stock had drifted) before they could be disposed of. Carcasses were moved out of active watersheds and scheduled for burial. Brand inspectors and Extension agriculture educators spent three weeks at eight sites checking tags and brands on each animal before loading on trucks.

Extension worked with state lands, public health officials, and USDA agencies to identify and certify 27 appropriate burial sites. This process was continued for the entire state in case other sites were needed, and included working with legislators and state officials to develop and pass a livestock burial statute and a statute identifying appropriate burial sites for disasters.

As the snow began to melt, health issues with the water source for Avondale began to arise. Several of the “lined reservoirs” on the Pueblo Munitions Depot, which had been used to wash di-nitroglycerine from Vietnam-era surface to air missiles (SAMs), had infiltrated down into an aquifer, passed under the Arkansas River, and was pumped up by Avondale city water wells and distributed across the 500+ residences. This included a Catholic migrant worker camp with 300–1,000 undocumented workers. State officials working with Colorado State University and the EPA found that the propellant/explosive had created heart issues in many residents. The court system then required DOD to provide bottled water to the town’s residents for over three years.

Since many of the farmsteads were directly impacted by the storm from fall work, the migrant workers had no income to feed families. The Catholic Church approached CSU Extension for help, who then reached out to the Farm Bureau and the Pueblo County Stockmen for help. Working together the group delivered 2,500 pounds of ground beef, one ton of flour, and assorted other vegetables to the migrant camp on Thanksgiving, Christmas, and New Year’s. This became a tradition and continues today.

Four months later the state veterinarian, state governor, and others called together a Colorado Agriculture Emergency Taskforce—including five Extension representatives—to begin formatting response to disaster needs in rural Colorado. Eventually this started the Colorado State Agriculture Response Team and Colorado EDEN. Representatives of the group also now serve on the DOD Depot Advisory Team, the Colorado Critical Infrastructure Committee, and other leadership roles where collaboration and contact information are critical during incidents.

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READINESS  
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