

Soil moisture levels vary across Texas amid ongoing drought

January 29 2025, by Adam Russell



Winter wheat fields are providing needed grazing in areas with adequate soil moisture while many dry-planted fields have yet to germinate in drought-stricken parts of Texas. Credit: Sam Craft/Texas A&M AgriLife

Drought conditions continue to influence agricultural production across

more than half the state, but large swaths of Texas are experiencing the best soil moisture in years, according to Texas A&M AgriLife Extension Service experts.

Some parts of the state are going into spring with a good soil [moisture](#) profile. However, according to the [U.S. Drought Monitor](#), much of the state west of Interstate 35 continues to deal with moderate to extreme drought conditions.

Jourdan Bell, Ph.D., AgriLife Extension agronomist and associate professor in the Texas A&M Department of Soil and Crop Sciences, Amarillo, said the Texas High Plains are drought-free for the first time in several years. The region received very beneficial rains in October and November.

Those rains improved soil profiles, filled stock ponds and benefited wheat planted for grazing and/or grain. Bell also expects the moisture to benefit rangelands when [warmer weather](#) arrives and native forages and browse break dormancy.

Despite the improved conditions, Bell said it is important to note subsoil moisture in many fields is lacking. In Texas A&M AgriLife research fields, soil moisture sensors confirmed negligible soil moisture increases below 20–24 inches.

"The performance of wheat later in the season and our summer crops will depend on winter moisture and timely spring rainfall to fully fill soil moisture profiles," she said. "But we're in much better condition than at this time in previous years."

Weather patterns deliver consistent moisture

Ronnie Schnell, Ph.D., AgriLife Extension agronomist and associate

professor in the Department of Soil and Crop Sciences, Bryan-College Station, said north and east of the Interstate 35 corridor had received consistent rains that have skirted much of West and South Texas. Schnell said Northeast Texas has benefitted from the La Niña weather pattern that is pushing storm systems north and to southeastern parts of the state like Beaumont.

For the most part, producers east of I-35 have experienced good working conditions as they prepare for summer crops. Cool-season forages should also be performing well with the moisture and milder temperatures.

However, areas along the Coastal Bend, including Corpus Christi, were experiencing drier conditions and moderate drought.

"The weather patterns have really helped the soil moisture profiles in those [wetter areas](#)," he said. "But in locations around San Antonio, Hondo and west you see soils that are much more on the deficient side, so they will need to catch spring rainfall leading up to planting."

Drought is the primary concern for most producers, but Schnell said the wetter weather pattern could be detrimental to producers' ability to access fields for preparations and planting.

Missing rainfall from storm systems

While rainfall loosened the drought's grip on the High Plains, and East Texas continues to receive timely rains, West and Southwest Texas have slipped deeper into protracted drought.

Reagan Noland, Ph.D., AgriLife Extension agronomist and associate professor in the Department of Soil and Crop Sciences, San Angelo, said some areas around the region received isolated heavy rains in September

and November, punctuating an otherwise extremely dry fall.

Rainfall amounts in some locations around San Angelo ranged from 5–13 inches over Labor Day weekend, and many areas received 3–5 inches in a short time in November, but all of October and December were very dry.

The rain events improved soil moisture levels some, but not as much as the slow, steady delivery of the same amount over a few weeks might have provided, Noland said. Above-average temperatures throughout the fall also contributed to subsequent moisture losses to evaporation.

Dryland wheat in the region has been stymied by the lack of rain and warmer temperatures, he said. Some dry-planted fields lay dormant until measurable rainfall was received in January. Adequate chilling hours for vernalization and timely rainfall will both be needed to allow those fields to produce profitable crops.

Conditions will need to improve for planting dryland summer crops like cotton, and timely rains will be needed to see them to harvest. The lack of rainfall in aquifer recharge zones is also impacting irrigation capacity for farmers with wells.

"Conditions look pretty bleak right now, but I'm hopeful," Noland said. "We've seen things turn around with timely rains. Our producers aren't excited about where things are, but the jury is still out regarding 2025 crop production opportunities."

AgriLife Extension district reporters compiled the following summaries:

Central

The weather was cold, with varying amounts of moisture. Some areas

received no precipitation, while others experienced a wintry mix of rain, sleet or snow. Small grains offered very little grazing, forcing livestock producers to rely on hay and supplemental feeding. However, hay supplies remained plentiful, keeping prices low. Farmers worked in the fields to prepare for spring planting. The cattle market saw a slight decline, but the sheep and goat market held steady.

Rolling Plains

The district reported an increasingly urgent need for rain. While wheat was up in all areas, the lack of moisture stalled growth, and in some places, wheat was drying up completely. Many producers were holding off on putting stocker calves out to graze wheat pastures until rain arrives. However, rain in the forecast provided an optimistic outlook heading into February.

Coastal Bend

Snow accumulation of 1–3 inches improved surface soil moisture but left fields too wet for farming operations to continue. Preplant fertilizer applications were underway before the snowfall. Freezing temperatures killed remaining green vegetation, and winter pastures were growing slowly despite some green-up from recent moisture. Pastures remained in poor condition, with widespread supplemental feeding of hay and protein. Livestock body condition scores were declining, though most cattle remained in fair to good condition. Heifer retention continued due to strong prices and high demand.

East

Subsoil and topsoil conditions were adequate. Winter weather had a significant impact across many counties. Freezing temperatures brought

rain, sleet and snow to some areas, with several days and nights below freezing. Some producers lost cattle during the last cold spell. Producers increased hay feeding to help cattle maintain body conditions and energy levels. Livestock were in fair to good condition, with heavy supplementation ongoing. Cattle market prices remained strong. Pasture and rangeland conditions ranged from very poor to good.

Panhandle

The district experienced extremely [cold temperatures](#), with nightly lows in the sub-zero range. Drought conditions persisted across the district, and negative temperatures put wheat into dormancy. Dryland wheat fields were not used for grazing due to poor quality, while irrigated fields lagged due to a lack of rain and limited water capacity. Livestock producers continued to supplement cattle with hay and cubes. Soil moisture ranged from very short to adequate, and pasture and rangeland conditions were reported from very poor to fair. Overall, crop conditions were poor to fair.

North

Topsoil and subsoil conditions were adequate to short in most counties, with only a few areas at adequate to surplus. Pasture and rangeland conditions varied from fair to good, with some counties reporting poor to very poor conditions. Freezing nighttime temperatures dropped below 20 degrees across the district. The freezing temperatures significantly impacted winter pastures. Winter wheat showed signs of stress following the snow and freezing temperatures, with notable yellowing and browning at the tips of the plants. Oats experienced similar damage under harsh conditions, and ryegrass in winter pastures was severely affected by the cold weather. Livestock remained in good condition, and some pastures were performing well. A few producers started spring

calving, with most herds expected to begin in the coming weeks.

Far West

The district experienced cold weather due to Winter Storm Enzo, with daytime highs ranging from 37-65 degrees and nighttime lows between 13-36 degrees. The storm brought rare snowfall and icy conditions to parts of the district, impacting vegetation and water sources. Livestock producers supplemented feed, chopped ice in frozen water troughs, and provided shelter for cattle, sheep and goats. Keeping water available for livestock was a challenge throughout the week. Most cattle stayed in good condition despite the cold weather.

Producers were providing supplemental feed with little to no vegetation available for grazing. Lack of rain led to an inferior wheat crop, with many acres still not germinated. Yield potential for anything that emerged was expected to be minimal without significant rainfall. Pecan growers nearly finished hedging orchards. Little fieldwork was conducted in row crops except for plowing areas to prevent wind erosion. Pastures remained short on winter weeds that provide forage for cattle.

West Central

Mornings were very cold, and freezing temperatures between 10–20 degrees stalled most agricultural work. Rain was in the forecast, and cool temperatures continued. The week ended with more typical January temperatures, with very cold, freezing nights and daytime highs in the upper 40s to low 50s. It was a dry week with strong, dry cold fronts keeping temperatures below normal for several days, and things began to dry out further.

Winter wheat continued to suffer from a lack of moisture, and cotton harvest was wrapping up. Most small grain fields were in poor to fair condition. Field preparation for spring planting continued, though conditions remained very dry. Pasture and rangeland conditions were dry. Livestock conditions saw an increase in supplemental feeding due to the cold weather, and producers were breaking ice to provide water. Cattle were in fair condition, with early fall moisture in some areas helping maintain pastures.

Southwest

An arctic blast arrived early last week, dropping temperatures below 20 degrees. No measurable precipitation occurred in the district, though some areas received ice and snow. The winter storm brought approximately 1 inch of snow to certain locations. It was still too early to determine potential freeze injury to growing crops. Cold-sensitive plants died back, but little damage was observed in pastures.

While moisture from the snow and ice was beneficial, more precipitation was needed to replenish the depleted soil profile. Pasture and rangeland conditions remained dry. Temperatures were expected to be moderate with a good chance of rain. Livestock markets were holding steady to strong. Supplemental feeding continued, and lambing and kidding were underway. Livestock were staying in herds to conserve warmth and were not traveling far for water. Supplemental forage was being used due to poor pasture conditions.

South

Conditions included the coldest temperatures of the season. An arctic cold front moved into the district, bringing temperatures below freezing for several hours on multiple days. Susceptible plants and forages

suffered freeze damage, with the majority of the damage affecting houseplants and home fruit trees. The full extent of the damage was still unknown for fall-planted grains, but corn and grain sorghum planting was likely delayed by a week due to the cold and limited soil moisture. Leafy greens were affected by freezing temperatures, and potential damage to citrus trees and winter vegetables was still being assessed.

Extreme [drought conditions](#) persisted, as the storm brought minimal moisture. Subsoil moisture remained dry, and additional rainfall will be necessary for the upcoming planting season. Nearly 1 inch of snow fell, but pasture and rangeland conditions continued to decline due to the lack of rainfall and freezing temperatures. Bermuda grass pastures showed burnt tops and entered their winter dormancy, along with other warm-season hay meadows.

Row crop producers prepared their fields for the upcoming planting season and hoped for another rain event. The local auction barn was closed due to the winter storm. Conditions were tough on beef cattle, livestock and wildlife, with producers busy providing hay, protein and supplemental feed. Most ranchers continued steady herd culling. Cattle prices remained good and consistent at the two local markets, while feed prices remained high.

Provided by Texas A&M University

Citation: Soil moisture levels vary across Texas amid ongoing drought (2025, January 29) retrieved 19 February 2025 from <https://phys.org/news/2025-01-soil-moisture-vary-texas-ongoing.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.