Brutal Drought Depresses Agriculture, Thwarting U.S. and Texas Economies

By Emily Kerr

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Agriculture has rarely made the difference between an expanding U.S. economy and one that is stalling. It may, however, have had such a pivotal role this year, as severe drought depressed the nation's farm output, taking a toll on broader economic growth. Texas, with more acreage devoted to farming than any other state, confronts the direct impact of two consecutive dry years.

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The agricultural sector directly accounts for just 1.2 percent of GDP and 1.6 percent of employment, although its overall impact on the U.S. economy is much larger because it is linked to a variety of industries. These include processing, manufacturing and exporting, as well as inputs used in farming, such as machinery and fertilizer. The U.S. Department of Agriculture (USDA) estimated that farm and farm-related employment represents roughly 14 percent of total U.S. employment.[1]

The U.S. exported $140 billion in agricultural products during 2011, representing nearly 10 percent of total exported goods. Agricultural sales abroad in 2012 will certainly be adversely impacted by drought-reduced crop production.

Farming in U.S., Texas

Nearly 40 percent of the nation's total land area is dedicated to agriculture, about equally split between cropland and pastureland. The top five U.S. agricultural commodities are corn, cattle, dairy products, soybeans and broilers (chickens raised for meat production). Farm receipts totaled nearly $375 billion in 2011.[2]

The composition of the Texas sector differs from the U.S. as a whole. Cattle and cotton remain king in Texas with their very large farming presence.

More than three-quarters of the state's total land area is dedicated to agriculture, and a disproportionate share of it—about two-thirds—is pastureland, largely used for raising cattle. Texas boasts the largest cattle industry among the states, bringing in more than $11 billion in annual farm receipts. Cattle, the state's No. 1 agricultural commodity, accounts for half of Texas farm receipts, compared with 17 percent for the U.S. overall.

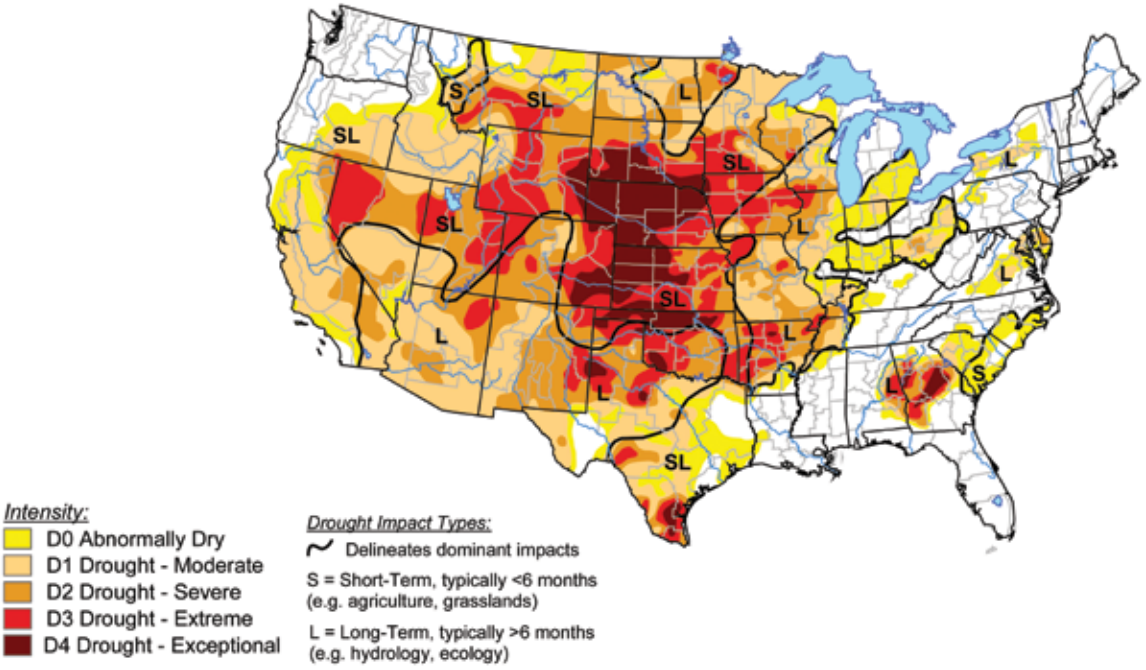
Cotton is Texas' second-most prominent agricultural item, and the state produces 30 percent of the nation's crop. Texas is the No. 1 cotton-exporting state, and the crop is responsible for more than one-third of the state's $6 billion in agricultural exports.[3]

Cattle are raised throughout the state, though in greater numbers in the west; grains such as corn, wheat and sorghum are grown mostly in the temperate north and north-central regions; cotton is produced expansively in the high and low plains; vegetables and fruits are mostly grown in the subtropical south. Although Texas has the most farm acreage of all the states, the land is less productive than in many parts of the U.S.[4]

Drought Déjà vu for Texas

Nearly two-thirds of the contiguous U.S. was in drought as of October 2012, compared with only 30 percent a year earlier, when drought conditions were confined to the Southwest.[5] The Great Plains have been hit the hardest

Chart 1 Drought Conditions Most Severe in Great Plains



SOURCE: U.S. Drought Monitor, released Oct. 23, 2012. The U.S. Drought Monitor is produced by the National Drought Mitigation Center at the University of Nebraska–Lincoln, the U.S. Department of Agriculture and the National Oceanic and Atmospheric Administration.

by the 2012 drought, with states such as Nebraska and Kansas experiencing widespread exceptional drought—the most severe classification (*Chart 1*).

The latest Texas conditions follow a much more severe and localized drought last year. 2011 was the driest year in Texas since records began in 1895. Conditions have since eased only slightly, and two-thirds of the state experienced a second year of drought this year.

Crops, Livestock Suffer

The successive droughts are profoundly and distinctly affecting national and local agricultural sectors. Unusually hot and excessively dry weather has taken a toll on this year's U.S. crop production. The USDA's September estimates project the smallest U.S. corn crop in six years, with production down 13 percent from 2011. Soybean production is expected to decline 14 percent.

Agricultural commodity prices climbed sharply during the summer on diminished yield expectations (*Chart 2*), with corn and soybean prices reaching inflation-adjusted levels not seen since the 1980s.

In states such as Nebraska and Kansas, where grain and soybeans account for 90 percent of farm output, higher prices largely offset reduced production. In Texas, where cotton predominates, fewer farmers benefit from bullish grain and soybean prices amid diminished yields. Cotton prices were high last year but have since declined 25 percent due to weak demand and record global cotton inventories.

Ranchers also face difficult conditions. Much of the pastureland used to support cattle herds withered under the hot, dry conditions, causing ranchers to feed grain to their herds—a very costly alternative in light of high grain prices. Hay, another food source, skyrocketed amid limited supply and very strong demand, with some ranchers paying double or triple last year's prices.

In response, ranchers sold their cattle earlier—bringing in less income due to lower animal weights—and

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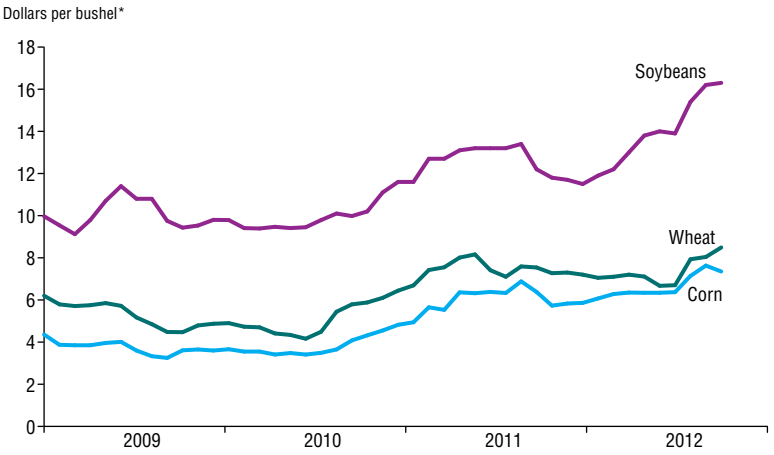
Chart 2 Drought Pushes Up Grain and Soybean Prices



*Nominal prices received by farmers.
SOURCE: U.S. Department of Agriculture.

in larger quantities than usual. Cattle prices softened in July because of the abundance of animals going to market, although prices remained high relative to the previous 10 years. Many cattlemen were forced to sell off breeding herds that took decades to develop. Texas felt the effect more acutely because cattle make up a disproportionately large portion of the state's agriculture sector.

2011 Texas Drought Severity

As much as the 2012 U.S. drought affected crop and pasture conditions, Texas confronted a far more calamitous situation in 2011. Resulting Texas agricultural losses were estimated at a record $7.6 billion in 2011,[6] far exceeding the previous $4.1 billion record, in 2006, and representing more than 40 percent of the state's average agricultural receipts. Main components of the loss were livestock, $3.2 billion; cotton, $2.2 billion; hay, $750 million; and corn, $736 million. Livestock losses reflected increased feeding costs and market losses due to lower animal weight and suppressed market prices. Crop losses stemmed mainly from high abandonment and low yields.

Only 57 percent of planted crop acreage in Texas was harvested in 2011—meaning 43 percent of acreage was abandoned due to crop failure. A comparison between the U.S. in 2012 and Texas in 2011 reveals the relatively tougher blow Texas farmers sustained (*Table 1*).

Texas corn production fell 55 percent in 2011 from the prior year, while the current drought is expected to lower U.S. corn production by only 13 percent. Texas cotton also sustained a 55 percent production loss last year, whereas U.S. cotton production is expected to increase 10 percent this year. In Texas and the U.S., crop insurance payouts largely offset the impact of higher crop abandonment and lower crop yields on farmers' incomes. Livestock producers, however, weren't covered as extensively by insurance and continue struggling with high feed costs.

Severe Cattle Industry Impact

As ranchers culled or completely liquidated herds under the strain of very poor pasture conditions and limited water availability, the Texas cattle population dropped by 1.4 million head from January 2011 to January 2012 (*Chart 3*)—an 11 percent decline, the sharpest in more than 75 years, leaving inventory at its lowest level since 1968. Texas still holds the largest number of cattle among the states, but its share of the national population is at a 25-year low of 13 percent. Outside of Texas, the cattle population declined 0.6 percent during 2011 as the overall U.S. inventory continued its

Table 1 Dueling Droughts: Impact on Texas vs. U.S.

	Corn		Soybeans		Cotton	
	U.S. 2012	Texas 2011	U.S. 2012	Texas 2011	U.S. 2012	Texas 2011
Crop abandonment (percent)	9	28	2	45	16	59
Crop yields (percent change, drought year vs. prior year)	–17	–36	–15	–37	–1	–23
Crop production (percent change, drought year vs. prior year)	–13	–55	–14	–69	10	–55

NOTE: 2012 U.S. figures are estimates based on forecasts as of September 2012.

SOURCES: U.S. Department of Agriculture Crop Production 2011 Summary, January 2012 (Texas data); U.S. Department of Agriculture Crop Production report, September 2012 (U.S. data).

gradual decline. The national herd has been trending down since 1975, largely a result of the beef industry raising fewer but heavier cattle.

Declining cattle inventories have put upward pressure on future retail beef prices, although the recent influx of supply eased short-term prices. Beef prices are expected to rise in 2013, a trend likely to continue amid less supply to meet domestic and global demand. Restocking herds is a gradual process, particularly since female cattle produce only one offspring per year. Restocking is also expensive, and not all ranchers will have the ability to buy back into the business. Also, downstream feedlots—which fatten cattle in preparation for slaughter—are hesitant to expand operations in the face of high feed grain prices, which squeeze margins.

Outlook: Drought to Persist

The Great Plains drought is expected to persist or even intensify through year-end, although conditions are likely to improve in the eastern Midwest, according to the National Oceanic and Atmospheric Administration.

Drought is certainly nothing new—farmers and ranchers have always faced periodic dry spells of varying severity. But in an economy struggling to gain momentum, the current episode brings an unwelcome drag on growth.

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Notes

[1] U.S. farm and farm-related employment, 2002, Economic Research Service, U.S. Department of Agriculture, Washington, D.C.

[2] State Fact Sheets: United States, as of Sept. 13, 2012, Economic Research Service, U.S. Department of Agriculture, Washington, D.C.

[3] All figures are from State Fact Sheets: Texas, as of Sept. 13, 2012, Economic Research Service, U.S. Department of Agriculture, Washington, D.C.

[4] This is discussed further in "Agriculture: Sector's Share of GDP Smaller in Texas than in U.S.," by Emily Kerr, Federal Reserve Bank of Dallas *Southwest Economy*, Second Quarter, 2012.

[5] Figures are from the U.S. Drought Monitor, produced by the National Drought Mitigation Center at the University of Nebraska–Lincoln, the U.S. Department of Agriculture and the National Oceanic and Atmospheric Administration, http://droughtmonitor.unl.edu.

[6] "Updated 2011 Texas Agricultural Drought Losses Total $7.62 Billion," by Blair Fannin, AgriLife Today, Texas A&M AgriLife Extension Service; March 21, 2012.

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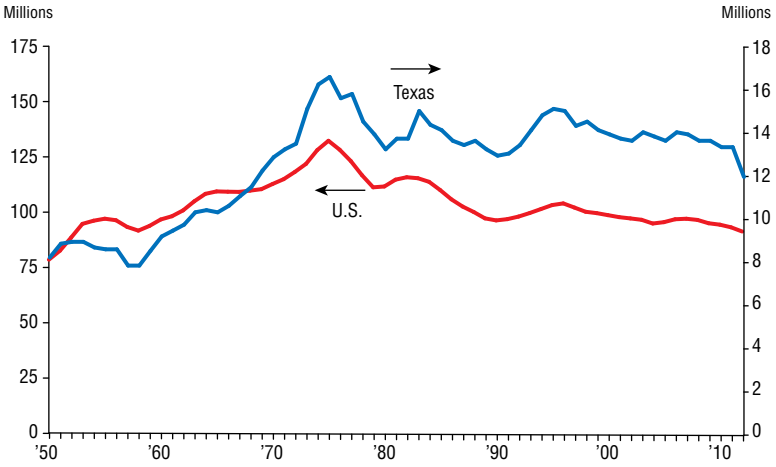
Chart 3 Texas Cattle Inventory Drops Sharply in 2011



SOURCE: Cattle Report, National Agricultural Statistics Service, U.S. Department of Agriculture.