

The Milkweed

Dairy's best information and insights

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“Float like a butterfly,
sting like a bee.”

— Muhammad Ali

Serious Drought Challenges 2021's U.S. Agricultural Output

by Pete Hardin

Among many challenges and disruptions to this nation's economy, serious drought problems grip the western half of the United States. This nation's food supplies are threatened by intense drought.

Fast-rising prices for corn and soybeans symbolize the tip of the iceberg, portending worries about serious, weather-driven challenges to this nation's agricultural production and food supplies in 2021 and beyond. Drought threats to this year's agricultural production come as national grain reserves are projected to end the 2020-2021 grain marketing year at very low carry-over levels.

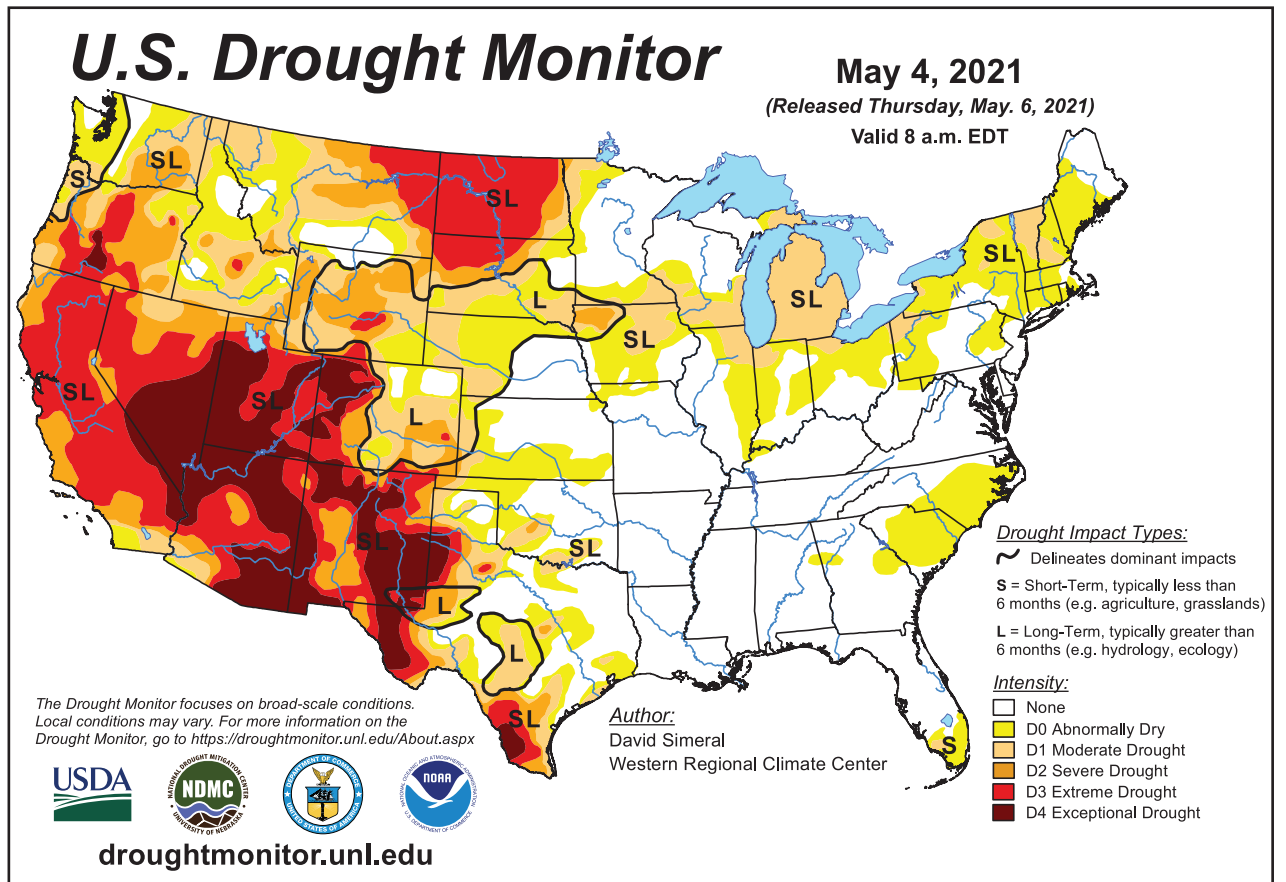
As of May 10, July 2021 corn futures closed in trading at Chicago at \$7.48 per bushel. That day, July 2021 soybean futures finished at \$16.20 per bushel.

The impact of these skyrocketing grain prices upon the nation's livestock and poultry industries will be significant.

The accompanying U.S. Drought Monitor map, dated May 4, 2021, reflects just how dramatically drought conditions extend across the United States. That map is produced weekly by four collaborating federal agencies. The western half of this nation is virtually fully enmeshed in drought — including large land masses most recently categorized as “Extreme” or “Exceptional.”

Important regions in the eastern half of the United States are also afflicted with drought, albeit far less severe than what's seen in western states. Major portions of the Corn Belt — stretching across much of Nebraska, Iowa, Illinois, Indiana and Ohio — are listed as “Abnormally Dry” or “Moderate Drought.”

West and East, drought and abnormally dry conditions overlap significantly with important concentrations of milk production. Virtually all major western dairy states are covered with one form of drought or another. In the eastern half of the country, dry conditions threaten Iowa, the southern half of Wisconsin, much of Indiana and Ohio, all of Michigan, the western third of Pennsylvania, most of New York State, and almost all of New England (except the Maine woods, where the predominate ruminants are moose.)



Virtually the entire western half of the United States is painted with some degree of drought. Dry conditions extend to numerous dairy states in the northeastern quadrant of the country, from Iowa to Maine. The U.S. Drought Monitor map is generated weekly by federal agencies, and clearly depicts drought's pending challenges to our nation's farm and food systems.

Many important agricultural regions of the United States incurred difficult weather conditions in 2019 and/or 2020. 2019 featured prolonged cold, wet conditions that extended long into spring ... and that wet weather continued into late fall. From soggy planting conditions to a wet, muddy harvest, 2019's grain and forage harvests were severely challenged across much of the Plains and Midwest. Those wet, wet conditions knocked down both harvested grain volumes and quality. And in 2020, the prevailing weather challenge across much of the grain-rich Plains was dry weather, punctuated with the early August Derecho event — severe, straight-line winds — that slammed a destructive path hundreds of miles in length stretching from Nebraska to Ohio.

California's water data looks grim

California is the nation's biggest agricultural state, in terms of total value of production. California is our leading dairy state, as well as the predominant supplier of fruits, vegetables, nuts, garlic ... and many other foods. The current U.S. Drought Monitor map paints the entire state of California in some form of drought — the predominant drought conditions is “Severe.” California's Central Valley — the epicenter for both the state's dairy industry and the nation's commercial fruit/vegetable output — is very, very dry.

California's agricultural abundance rests primarily on a complex system of hydrologic engineering. That state's water management system entails a com-

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Critical Industrial Inputs' Prices Spiking to Fuel Inflation

by Pete Hardin

In early April, a business columnist for *The New York Times* opined that inflation was not a worry, because consumer prices were flat.

More recently, the Federal Reserve governors are sticking to their position that inflation is not a pending problem.

Regardless of those mistaken opinions, “sticker shock” is knocking backwards anybody who has priced lumber, steel, fertilizer and/or grain in recent weeks and months. In lumber, eight-foot long 2x4s are hitting \$9 apiece. A 4'x8' sheet of half-inch plywood is priced from \$55 (and up).

Steel? Last month, *The Milkweed* detailed steel cost increases incurred by an Ohio-based manufacturer of semi-trailers. From late December 2020 through the end of this past March, steel costs were up 82% and stainless steel costs had climbed 62%. The owner of a local service station told *The Milkweed* that he's getting \$190/ton for junk vehicles sent to the crusher. Last fall, he received \$60/ton for the same.

Fertilizer costs have spiked during the past year — a fact of which every farmer in the United States

is intimately familiar.

Grain? At press time, July 2021 corn futures settled at \$7.48 per bushel — an increase of more than 100% over the past year. And July 2021's soybean futures closed at \$16.20/bushel on May 10 — an all-time record.

Inflation? Measures of current consumers' costs don't portend key future trends. Rather, across-the-board cost increases for basic industrial inputs are a far more accurate index of what's ahead for the economy.

(We suspect that lumber costs are headed so high than in areas devastated by tornadoes, folks will soon be visiting wrecked buildings trying to salvage 2x4s and plywood sheets. By hammering out a few nails from otherwise intact 2x4s, a person could make \$75-\$100 per hour!)

Forget the “experts.” Common persons fear that significant inflation is pending ... without even getting into a discussion about massive federal deficits that are piling up. And just wait until food costs start spiking at the supermarket — a highly predictable outcome of the serious drought blanketing

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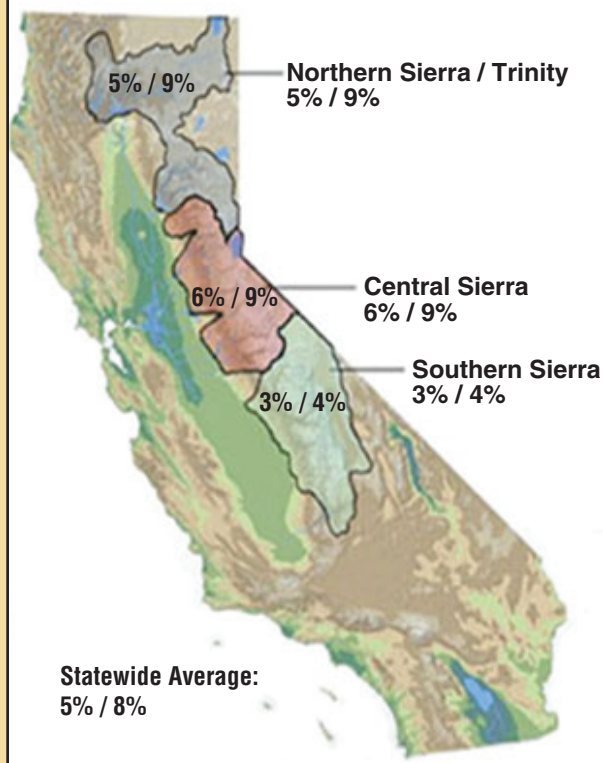
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Serious Drought Challenges 2021's U.S. Agricultural Output, con't

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Current Regional Snowpack From Automated Snow Sensors Data as of May 10, 2021

% of April 1 Average / % of Normal for This Date



NORTH	
Data as of May 10, 2021	
Number of Stations Reporting	31
Average snow water equivalent (Inches)	1.4
Percent of April 1 Average (%)	5
Percent of normal for this date (%)	9

CENTRAL	
Data as of May 10, 2021	
Number of Stations Reporting	41
Average snow water equivalent (Inches)	1.8
Percent of April 1 Average (%)	6
Percent of normal for this date (%)	9

SOUTH	
Data as of May 10, 2021	
Number of Stations Reporting	27
Average snow water equivalent (Inches)	0.7
Percent of April 1 Average (%)	3
Percent of normal for this date (%)	4

STATE	
Data as of May 10, 2021	
Number of Stations Reporting	99
Average snow water equivalent (Inches)	1.4
Percent of April 1 Average (%)	5
Percent of normal for this date (%)	8

plex network of reservoirs and canals to deliver water from the Sierra Madre mountains of northern and central California to the heavily-populated areas of Southern California and the extended Bay Area (San Francisco and surrounding communities within an extended radius). Fundamentally, California's water system collects run-off from snowmelt in the mountains and diverts that water to reservoirs. From the reservoirs, a canal system delivers water to the arid central and southern areas of the state.

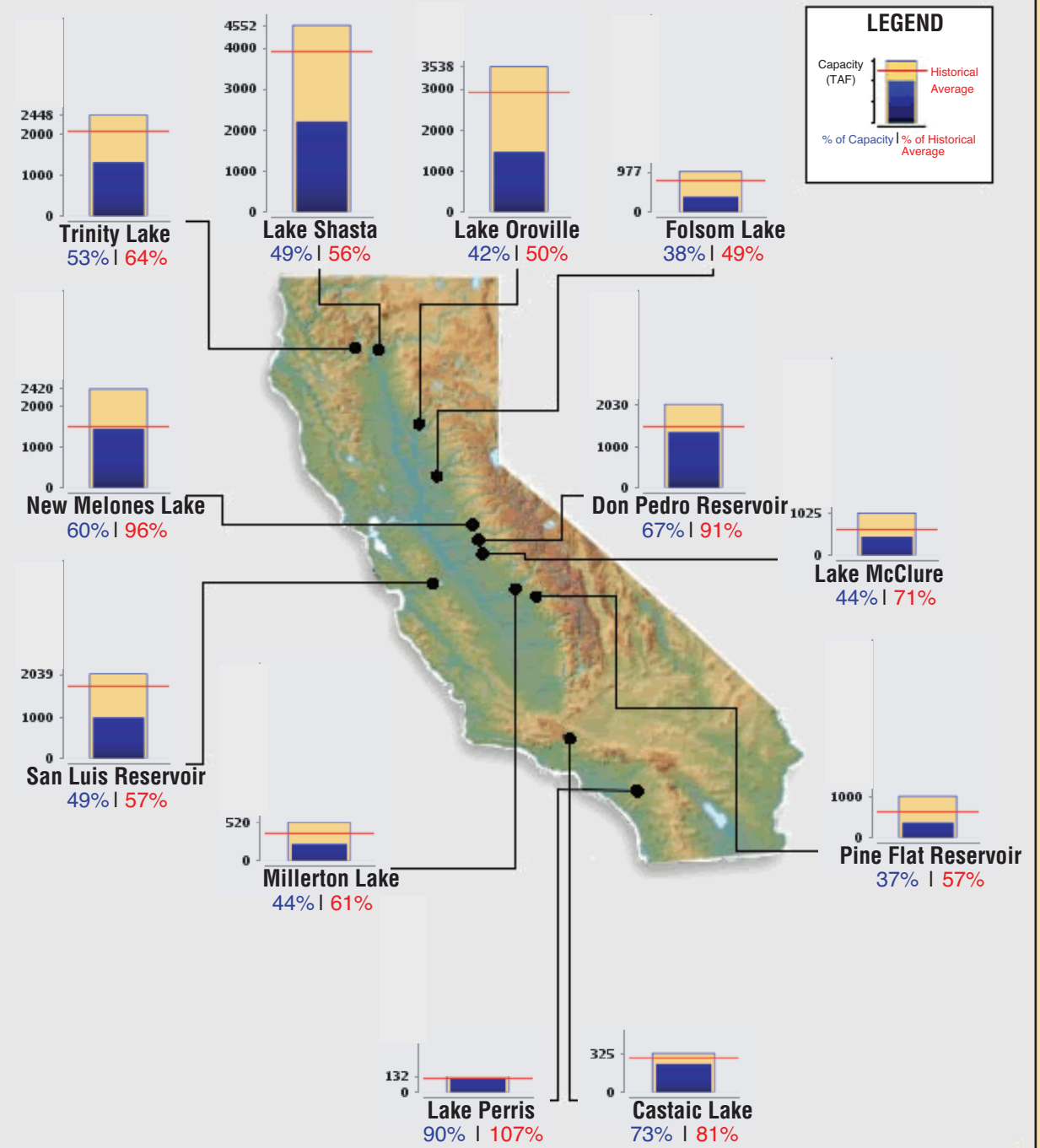
That complex water system has decades-long metrics that gauge both the volumes of moisture held in the snowpack, as well as monitoring the levels of water in major reservoirs. Here in early spring 2021, virtually every measure of water supplies in California is dire. That's particularly the case for the state's biggest reservoirs in the northern part of the state. Meanwhile, the water content of the remaining snowpack is paltry, compared to historic levels.

On May 10, Gov. Newsom declared a state drought emergency.

California's three largest reservoirs – Trinity Lake, Lake Shasta, and Lake Oroville – comprise just over half of the water storage capacity for the 12 reservoirs reported by the Department of Water Resources — California Data Exchange Center: <https://cdec.water.ca.gov/>

California Reservoir Conditions

Ending At Midnight - May 9, 2021



As of May 4, 2021, those three reservoirs' stored volumes were 42% below normal capacity. Admittedly, smaller reservoirs in the central and southern part of the state are closer to normal capacity. Keep up on the California Reservoir Map: <https://cdec.water.ca.gov/resapp/RescondMain>

If that's not enough bad news, automated snow sensors – strategically located high in the mountains – measured water content of the remaining snowpack at only 8% of normal, as of May 10. In other words, the cavalry ain't coming. Keep informed about the California Snow Pack Map: <https://cdec.water.ca.gov/reportapp/javareports?name=swccond.pdf>

In late April, severe cutbacks of available irrigation water for selected areas were announced by state water regulators. Several million acres of California's agricultural lands will receive ZERO irrigation water in 2021.

The alternate water source for some California agriculturists, absent adequate supplies of irrigation water, is well water. During the prolonged dry period that extended for about five years and ended a couple years ago, California farmers drilled many deeper wells, in some cases drawing ancient water to the surface. Problems (plural) resulted. First, the energy requirements and costs to bring up ground water from deeper in the ground are geometric. (Example: It requires significantly more than double the energy required to pump water from 200 feet below ground than from 100 feet down.)

The second problem with drawing ancient water – sometimes from depths of 800 to 1,000 feet below the surface – is that water has a high content of minerals, including metals. The high mineral content wears out high-capacity pumps quickly. Expensive.

Global grain stocks reduced

Adverse weather in many areas of the world is pulling down grain stocks. Brazil, which along with the United States has been the western hemisphere's leading grain exporter, is positioned to be a grain importer, due to crop problems. Argentina has been suffering from dry conditions.

China continues to be a major grain importer. China is attempting to rebuild its swine herd, which

was cut in half by an African Swine Fever epidemic a few years ago. Attempts to restock China's swine numbers require that nation to import significantly higher volumes of grain.

Global grain supplies are tightening. Any adverse impact by weather upon the United State's 2021 grain production will seriously ripple across the world.

Implications of western drought ...

Drought conditions that encompass virtually the entire western half of the United States can spread. For many areas of the country, outside the East and Gulf Coasts, prevailing weather systems during the warm months generally originate from some form of "west" – southwest, west or northwest.

In the Midwest and Plains, for example, warm weather rainstorms and thundershowers often stem from moisture picked up by the warmth of sunlight during morning and early/mid-afternoon. That moisture in the atmosphere becomes clouds. Downwind, that moisture may be redeposited back to earth by late afternoon and evening storms.

Problem is, when the western half of the country is so dry, there's little moisture for warm weather sunlight to lift from the earth's surface and redeposit downwind. Thus, the more modest drought stages currently witnessed in the Upper Midwest, Mid-East, and parts of the Northeast may be exacerbated by drought conditions to the west. Just talking ...

... been good while it lasted

With a few notable exceptions – 1988 Drought, 1993 severe flooding, and California's prolonged drought during the "teens" — weather in the United States has generally sustained strong agricultural production. However, the current specter of serious drought blanketing virtually the entire western half of the United States ... during a time when global grain supplies are at low ebb and coming months' grain futures are spiking into the stratosphere ... leads to serious concerns about higher production costs for livestock and poultry producers and higher food prices at the supermarket for consumers.

Generally, food and farm news is better on the back pages than the front pages of daily newspapers.