America's Barometer Spells Trouble

Dropping Mississippi River levels point to merchandising challenges ahead

By Diana Klemme

Garciliaso de la Vega *may* have exaggerated. As historian of Hernando de Soto's explorations, in 1543 de la Vega described a great flood on the Mississippi River stretching "20 leagues on each side of the river," and lasting 80 days. Forty leagues is roughly 120 miles, and we can't know how de la Vega arrived at his number, but it was an impressive flood by any measure. The Great Flood of 1927 was estimated to "only" stretch 80 miles across.

The Mississippi River is a 2,300-mile marvel of nature that drains 41% of the contiguous states in a basin covering more than 1.2 million square miles. When inundated from its tributaries, the river's flow rate at St. Louis has reached 800,000 to 1 million cubic feet per second (cfs), as in 1993, but during dry times has fallen as low as 25,000 to 30,000 cfs.

The Mississippi is America's barometer — reflecting long-term conditions, as well as short-term events. And this season the river warned us we're in trouble. *Scientific American* noted in a November article: "Rising temperatures, persistent drought, and depleted aquifers on the southern Great Plains could set the stage for a disaster similar to the Dust Bowl of the 1930s … "

The extreme drought of 2012 slowed the Mighty Miss to 60,000 to 75,000 cfs at St. Louis by November, and dropped water levels to a record low at Memphis. This was even before the U.S. Army Corps of Engineers began its mandated winter reduction in the discharge rate out of the Gavins Point, SD, reservoir. Cutting the reservoir discharge from 37,500 cfs to 12,000 cfs further slowed the flow rate on the Missouri River and lowered the water level on the Mississippi below St. Louis.

By late-December, the water level south of St. Louis and north of where the Ohio River joins the Mississippi dropped low enough to expose dangerous rock "pinnacles" — and shut navigation altogether in that stretch. The Corps has begun to blast the pinnacles, but it's a complex job and navigation will remain a day-to-day problem. America's barometer could turn into a "minefield" for barges.

Soybean exports by late November 2012 had already hit a record high 600 million bushels, against record total sales of 1 billion bushels (for that early in the crop year) — sales that are largely expected to be shipped by late winter with a large percentage being shipped from the Gulf.

2013 Crop Scenarios

CORN	A	B	C	D	
Beginning stocks	750	750	750	750	M bu
Planted	97000	97000	97000	97000	000 A
Harvested	90.0%	90.2%	90.4%	91.7%	
Acres	87300	87494	87688	88949	000 A
Yield	125	138.8	143.7	155	bpa
Production (M bu)	10,913	12,144	12,601	13,787	M bu
Usage (M bu)	(11,000)	(12,100)	(12,300)	(12,800)	M bu
End stocks =	663	794	1,051	1,737	M bu
SOYBEANS					
	A	B	C	D	
Beginning stocks	140	140	140	140	M bu
Planted	77500	77500	77500	77500	000 A
Harvested	98.5%	98.5%	98.5%	98.5%	
Acres	76338	76338	76338	76338	000 A
Yield	37.3	39	41.5	43	bpa
Production (M bu)	2,847	2,977	3,168	3,283	M bu
Usage (M bu)	(2,850)	(3,000)	(3,150)	(3,250)	M bu
End stocks =	137	117	158	173	M bu

(assumes zero imports)

Merchandisers everywhere have a major interest in the water levels on the Mississippi. Too much water or too fast a flow and barges can't move properly and freight costs rise. Too little water and shippers have to reduce the load on barges to cut the draft level — how low the barges ride in the water — and often must cut the number of barges a single tow can handle. Inefficiency raises freight costs and that affects logistics and basis.

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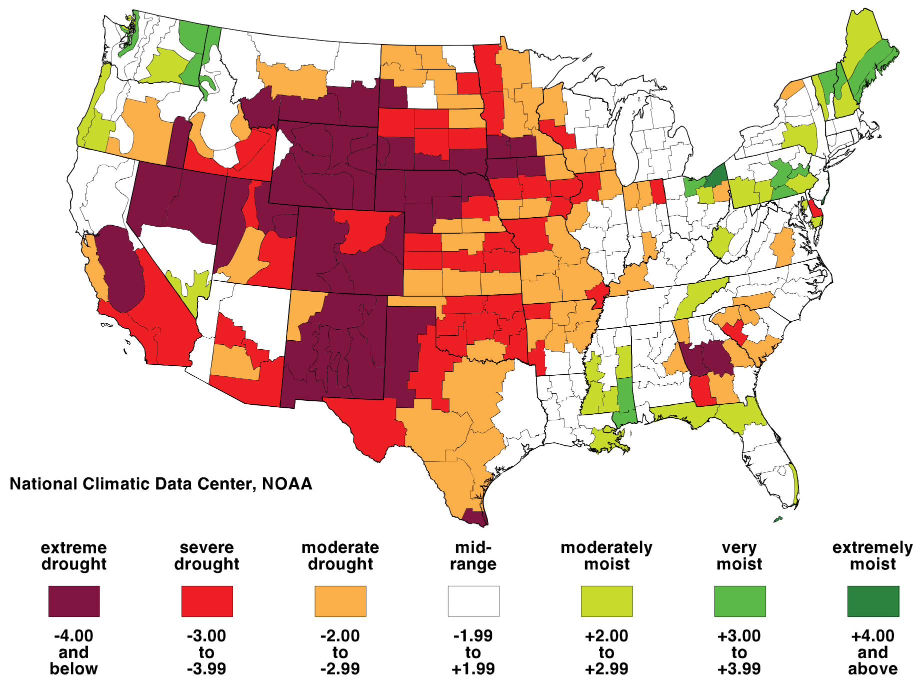
Palmer Hydrological Drought Index
Long-Term (Hydrological) Conditions
October 2012



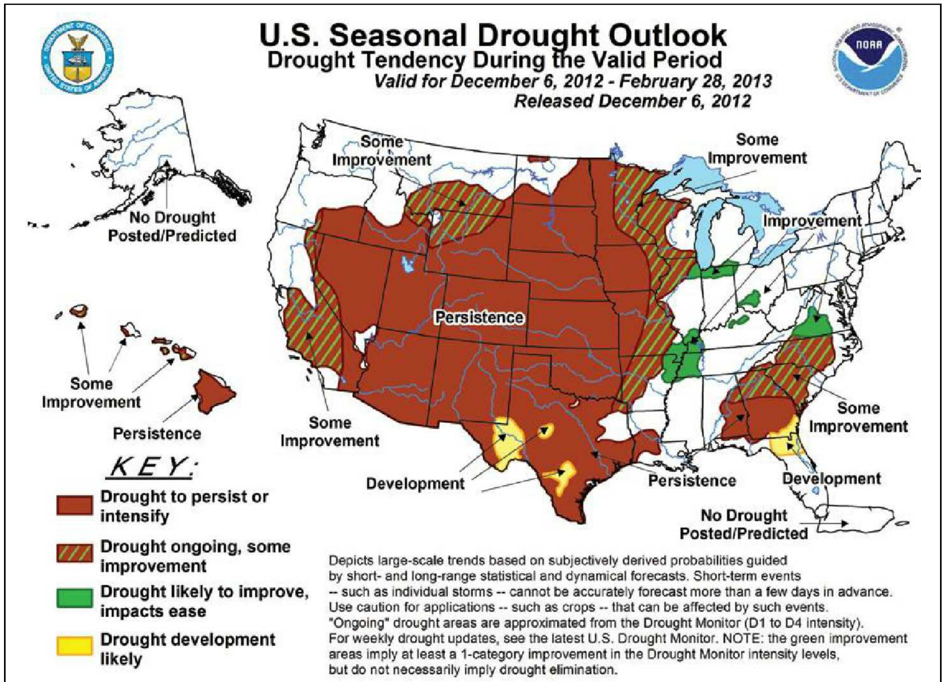
National Climatic Data Center, NOAA

HTTP://WWW.NCDC.NOAA.GOV/OA/CLIMATE/RESEARCH/PRELIM/DROUGHT/PHDIIMAGE.HTML

Gulf loadings of corn, soybeans and wheat run 35 to 60 million bushel/week, and southbound barge counts can run 200 to 1,000/week (10 to 50 million bushels). Barge freight is traded as a percentage of a base rate and rises or falls quickly when river conditions change. The short-term implications of river disruptions can impact basis far and wide as logistics and costs change. One consolation: The problems in 2012 were the worst north of where the Ohio River joins the Mississippi at Cairo, although the river could hit record lows as far south as Memphis.

Here's what could occur:

- Barge lines can move south to the Ohio River or Lower Mississippi.
- Loadings would shift to those regions, which in turn supports basis levels there.



HTTP://WWW.CPC.NCEP.NOAA.GOV/PRODUCTS/EXPERT_ASSESSMENT/SEASON_DROUGHT.GIF

- Load restrictions push barge freight higher and weigh on upriver basis.
- Illinois River locations would see basis weaken as loadings slow.
- Surrounding domestic markets can rise or fall as river basis changes.
- Exporters turn to unit or shuttle trains to source a larger percentage of the corn and soybeans for the Gulf, which in turn can support subterminal basis at origin.
- More Asian sales could be diverted to the PNW, supporting PNW basis values.
- Secondary rail freight values should begin to rise on the increased demand for trains.

The merchandising ripples will continue depending on the scope and severity of the problems. But unless there's a dramatic shift in the dry weather pattern of the western Corn Belt and the Plains, this will be a long, rough winter that could be followed by an equally challenging spring and summer. The Plains drought is the most severe in decades, with NOAA's seasonal outlook showing it to persist through winter, raising questions about 2013.

The 2013 hard red wheat crop is already threatened. "Good/excellent" ratings were at record lows through November, with most of the Plains wheat rated 40% or more "poor/very poor." Fall ratings don't determine final wheat yields but they can raise red flags. Pasture ratings are even worse: Nebraska was last rated at 97% P/VP, with Kansas and Oklahoma at 79% and 69%. KC wheat futures are almost $2 over July 13 corn, which sharply lowers the prospects for feeding wheat in the Plains in 2013.

Predicting the 2013 corn and soybean crops is pointless at this stage. But we can lay out a range of possibilities and consider a few ramifications. Let's assume a repeat of 2012 acres and go from there.

The tables (pg. 9) assume planted corn acres remain at 97 million and that soybeans acres are about 77.5 million. Scenario A assumes widespread problems similar to 2012. Scenario B uses low yields in the Plains and western Corn Belt, but good yields in most other states. Scenario C raises the yields slightly in the Plains vs. Scenario B and Scenario D assumes a reasonable recovery from the drought. As production prospects rise, the scenarios assume usage will also increase, on less wheat feeding, higher ethanol production and exports. A fifth scenario could be considered: lower acres accompanied by the drought expanding eastward with further cuts to yields from this year. A crop of less than 10 billion bushels (2.8 billion on soybeans) would be catastrophic and require even more extraordinary cuts to usage combined with imports to cushion the shortfalls. Bear in mind, these are scenarios — not predictions — and reality could turn out different.

Disappearance will be influenced by production in South America as well as in the United States. And how fast will usage recover even if U.S. crops *are* bigger? U.S. soybean disappearance was 3.2 to 3.3 billion bushels until this year, with corn at 12 to 13 billion bushels.

Ending stocks of corn could be able to recover somewhat by 2014; much would depend on how fast usage recovers. But with the continuing growth of soybean crushing in China, demand for U.S. soybeans could increase as fast as production recovers and keep U.S. stocks tight.

America's barometer may be warning us that we're heading into another Dust Bowl. But a shift to a persistent rainy period this winter would ease the river problems and improve 2013 crop prospects.

Until widespread rains materialize in the Plains and western Corn Belt, however, it's wise to consider the potential for another year of reduced production, high prices, margin calls, tight stocks, minimal carries in futures and river disruptions, with the resulting merchandising challenges. Make sure your credit line for hedging keeps pace with rising prices, keep margins wide on forward bids, and watch contracts and counterparty credit exposure on open purchase or sales. And watch the barometer!