

BOARD OF TRADE OF THE CITY OF CHICAGO INC.

ANALYSIS OF DELIVERABLE SUPPLY

WHEAT FUTURES

AUGUST 2018

In estimating deliverable supply for the Wheat Futures, the Board of Trade of the City of Chicago Inc. ("CBOT" or "Exchange") relied on long-standing precedent, which provides that the key component in estimating deliverable supply is the portion of typical supply stocks that could reasonably be considered to be readily available for delivery. In its guidance on estimating deliverable supply, the Commodity Futures Trading Commission ("CFTC" or "Commission") states:

In general, the term "deliverable supply" means the quantity of the commodity meeting a derivative contract's delivery specifications that can reasonably be expected to be readily available to short traders and saleable by long traders at its market value in normal cash marketing channels at the derivative contract's delivery points during the specified delivery period, barring abnormal movement in interstate commerce. Typically, deliverable supply reflects the quantity of the commodity that potentially could be made available for sale on a spot basis at current prices at the contract's delivery points. For a non-financial physical-delivery commodity contract, this estimate might represent product which is in storage at the delivery point(s) specified in the futures contract or can be moved economically into or through such points consistent with the delivery procedures set forth in the contract and which is available for sale on a spot basis within the marketing channels that normally are tributary to the delivery point(s).¹

Background:

All wheat production in the United States this past season was 1.741 billion bushels, with soft red winter wheat representing 292 million bushels or over 16 percent of total US wheat production. Soft red winter wheat, which is the underlying wheat class for the CBOT Wheat futures contract, is primarily used to make cookies, cakes and crackers and is also used as a livestock feed. USDA estimates the 2018/19 U.S. soft red winter wheat crop to remain unchanged compared to 2017/18 and maintain production levels at 292 million bushels.

CBOT Wheat Futures Delivery Capacity (Updated Annually):

Wheat shipping certificates may be issued from any one of the currently regular for delivery facilities located in the following territories:

- A. Chicago and Burns Harbor, Indiana Switching District - The Chicago Switching District is the area geographically defined by Tariff ICC WTL 8020-Series and that portion of the Illinois Waterway at or above river mile 304 which includes the Calumet Sag Channel and the Chicago Sanitary & Ship Canal. The Burns Harbor, Indiana Switching District is the area geographically defined by the boundaries of Burns Waterway Harbor at Burns Harbor, Indiana which is owned and operated by the Indiana Port Commission.
- B. The Toledo, Ohio Switching District. – The Toledo, Ohio switching district includes any facility that has a Toledo tariff.
- C. St. Louis - Alton Switching District - The St. Louis – Alton Territory shall be on the Mississippi River between Upper River mile markers 205 and 168.
- D. The Northwest Ohio Territory shall be shuttle loading facilities within the following 12 counties: Allen, Crawford, Hancock, Hardin, Henry, Huron, Marion, Putnam, Sandusky, Seneca, Wood, and Wyandot.

¹ http://www.ecfr.gov/cgi-bin/text-idx?SID=74959c3dbae469e2efe0a42b45b8dfae&mc=true&node=ap17.1.38_11201.c&rgn=div9

- E. The Ohio River facilities shall be river loading facilities on the Ohio River from mile marker 455 to the Mississippi River.
- F. The Mississippi River facilities shall be river loading facilities on the Mississippi River downriver from the St. Louis-Alton Switching District to mile marker 715.

Facilities approved for delivery on Wheat futures in the Mississippi River, Ohio River and St. Louis-East St. Louis-Alton territories are limited in the number of shipping certificates that they may issue to an amount not to exceed 20 times their total daily rate of loading barges, while facilities in the Chicago, Burns Harbor, Toledo and Northwest Ohio delivery territories shall not deliver more than their registered storage capacity. As of August 2018, firms regular for delivery on CBOT Wheat futures had approved capacity to issue 42,456 shipping certificates or 212.28 million bushels of wheat.

Below are the facilities regular for delivery on Wheat futures in August 2018 along with the maximum number of shipping certificates they may issue, with each shipping certificate equivalent to 5,000 bushels:

Firm	Location	Max Certificates
Cargill, Inc.	Burns Harbor Elevator Portage, IN	1,553
COFCO International Grains US LLC	Elevator B Chicago, IL	2,462
ADM Grain Company	Sauget, IL	220
Archer-Daniels-Midland Co.	St. Louis Elevator St. Louis, MO	314
Bunge North America	Fairmont City, IL	440
Cargill Inc.	Elevator East St. Louis, IL	440
Ardent Mills, LLC	Alton, IL	677
Consolidated Grain and Barge	Cahokia, IL	220
Louis Dreyfus Company River Elevators LLC	Cahokia, IL	220
COFCO GROWMARK LLC	Cahokia, IL	440
The Andersons	Andersons-Illinois Elevator Maumee, Ohio	3,391
The Andersons	River Elevator Toledo, Ohio	1,240
The Andersons	Conant Street Elevator Maumee, Ohio	656
The Andersons	Edwin Drive Elevator Toledo, Ohio	1,180
The Andersons	Toledo, Ohio (Reynolds Rd)	196
ADM Grain Company	Toledo Elevator Toledo, Ohio	1,959
ADM Grain Company	Ottawa Lake Elevator Ottawa Lake, MI	2,372
ADM Grain Company	Newburgh, IN	440
ADM Grain Company	Evansville, In (Broadway)	440
ADM Grain Company	Evansville, IN (Dixie Flyer)	220
ADM Grain Company	Rockport, IN	440
ADM Grain Company	Mound City, IL	440
ADM Grain Company	Paducah, KY	220
ADM Grain Company	Ledbetter, KY	220
ADM Grain Company	Silver Grove, KY	440
ADM Grain Company	Henderson, KY	220
Bunge North America	Owensboro, KY	220
Bunge North America	Shawneetown, IL	440
Cargill, Inc.	Cincinnati, OH (Kellogg Avenue)	220
Cargill, Inc.	Cincinnati, OH (River Road)	220
Cargill, Inc.	Evansville, IN	220
Cargill, Inc.	Mt. Vernon, IN	440
Consolidated Grain and Barge	Cincinnati, OH (Anderson Ferry)	220
Consolidated Grain and Barge	Cincinnati, Oh (Southside Riverside)	220
Consolidated Grain and Barge	Aurora, IN	220

Firm	Location	Max Certificates
Consolidated Grain and Barge	Jeffersonville, IN	220
Consolidated Grain and Barge	Mt. Vernon, IN	220
Consolidated Grain and Barge	Mound City, IL	220
Consolidated Grain and Barge	Uniontown, KY	220
Consolidated Grain and Barge	Brandenburg, KY	220
Gavilon Grain LLC	Maceo, KY	440
Gavilon Grain LLC	Henderson, KY	440
Owensboro Grain Company	Owensboro, KY	220
ADM Grain Company	New Madrid, MO	440
ADM Grain Company	Memphis, TN	440
Bunge North America	Grand Tower, IL	220
Bunge North America	Hickman, KY	440
Bunge North America	Portageville, MO	440
Bunge North America	Caruthersville, MO	440
Bunge North America	Finley, TN	220
Bunge North America	Blytheville, AR	440
Bunge North America	Osceola, AR (Riverside)	220
Bunge North America	Osceola, AR (Landside)	440
Bunge North America	Memphis, TN	220
Bunge North America	West Memphis, AR	440
Cargill, Inc.	Buffalo Island, MO	220
Cargill, Inc.	New Madrid, MO	220
Cargill, Inc.	Hickman, KY	220
Cargill, Inc.	West Memphis, AR	440
Consolidated Grain and Barge	Charleston, MO	220
Consolidated Grain and Barge	Cape Girardeau, MO	220
Consolidated Grain and Barge	Caruthersville, MO	220
Consolidated Grain and Barge	Caruthersville, MO (Cottonwood Point)	220
Consolidated Grain and Barge	East Prairie, MO	220
Consolidated Grain and Barge	Osceola, AR	220
Consolidated Grain and Barge	Scott City, MO	220
Consolidated Grain and Barge	West Memphis, AR	220
Cargill, Inc.	Lima, OH	385
Sunrise Cooperative	Clyde, OH	1,655
Sunrise Cooperative	Galion, OH	1,397
Sunrise Cooperative	Wakeman, OH	1,756
Heritage Cooperative, Inc.	Upper Sandusky, OH	705
Heritage Cooperative, Inc.	Kenton, OH	720
Legacy Farmers Cooperative	Fostoria, OH	1,710
Legacy Farmers Cooperative	Findlay, OH	583
Legacy Farmers Cooperative	Custar, OH	605

CBOT Wheat Futures Deliverable Supply Procedures and Estimate (Updated Annually):

Each Tuesday the Registrar's Office publishes wheat meeting deliverable grades that are in-store as of the previous Friday at all regular delivery facilities. The USDA-AMS publishes a weekly Grain Transportation Report (GTR) that covers developments affecting the transport of grain, both in the domestic and international marketplace (<http://www.ams.usda.gov/AMSV1.0/gtr>). This weekly publication reports on the latest volume and price data for barges, railroads, trucks, and ocean vessels involved in

the transport of grain. Included in this report is the amount of wheat shipped through Lock 52² on the Ohio River, which is a measure of wheat flowing through the Ohio River delivery territory for Wheat futures.

Deliverable supply is estimated as the stocks of grain in regular facilities on the Friday prior to First Notice Day plus the amount of wheat that passes through Lock 52 on the Ohio River during the four weeks prior to First Notice Day³. This is likely a very conservative estimate of deliverable supply because it does not count the significant amount of wheat that is likely near the delivery facilities and could easily be placed into delivery position very quickly. While this estimate of deliverable supply does not attempt to include these stocks, they could be estimated to some degree using economic theory. Economic theory and the theory of storage would suggest these uncounted stocks would likely exceed the stocks reported in the Stocks of Grain report⁴. Regular delivery facilities on the Ohio and Mississippi Rivers are in position to aggregate wheat for export; thus, the value of wheat in most of the river delivery facilities is greater than the value of wheat in the country because wheat in the country needs to be transported to be in position for export. The cost to store wheat includes opportunity cost, and opportunity costs increase with value. Thus, the cost to store wheat in position at a regular delivery facility is greater than the cost to store in the country all other factors equal. If there is wheat being stored in position in a river facility, it suggests export demand, and theory would suggest a greater amount of stocks would be stored internally due to the lower cost. The Exchange may, at a later date, decide to estimate these stocks and include them in future deliverable supply estimates.

Futures Contract Expiration	Wheat Movement through Lock 52 on the OH River during the 4 Weeks Prior to FND (1M Bushels)	Stocks of Wheat in Regular Facilities on the Friday prior to FND (1M Bushels)	Total Stocks (1M Bushels)
Mar-17	1.23	81.26	82.49
Mar-16	0.37	55.28	55.65
Mar-15	1.43	37.43	38.86
MAR AVG	1.01	57.99	59.00
May-17	1.93	67.95	69.88
May-16	0.67	49.37	50.04
May-15	1.20	30.25	31.45
MAY AVG	1.27	49.19	50.46
Jul-17	1.50	83.23	84.73
Jul-16	0.83	63.43	64.26
Jul-15	2.70	38.75	41.45
JUL AVG	1.68	61.80	63.48
Sep-17	2.73	79.28	82.01
Sep-16	1.30	93.78	95.08
Sep-15	6.53	50.79	57.32
SEP AVG	3.52	74.62	78.14
Dec-17	0.20	94.13	94.33

² http://marinas.com/view/lock/31_Ohio_River_Lock_52_Brookport_IL_United_States

³ This analysis does not include SRW wheat flowing down the Illinois and Upper Mississippi Rivers that would also be deliverable on the CBOT Wheat futures contract in the Alton – St. Louis delivery territory. Wheat statistics are available on the lowest lock on the Mississippi River, which would capture these data, but because these stocks are not differentiated between classes and likely contain significant amounts of spring wheat, the Exchange decided not to include these stocks in this analysis. Spring wheat is deliverable on CBOT Wheat futures, but rarely if ever delivered, so this analysis focuses on SRW wheat. Ohio River stocks included in this report are predominantly, if not virtually all, SRW wheat.

⁴ See <http://ajae.oxfordjournals.org/content/77/3/512.abstract>

Futures Contract Expiration	Wheat Movement through Lock 52 on the OH River during the 4 Weeks Prior to FND (1M Bushels)	Stocks of Wheat in Regular Facilities on the Friday prior to FND (1M Bushels)	Total Stocks (1M Bushels)
Dec-16	0.47	76.26	76.73
Dec-15	0.63	49.3	49.93
DEC AVG	0.43	73.23	73.66
AVG ALL DELV MONTHS	1.58	63.37	64.95

Seasonality:

The Exchange continuously monitors the deliverable supply and the delivery requirements on the Contract. Further, the Exchange closely monitors seasonality and to the extent that the Exchange anticipates that 25 percent of any contract month's deliverable supply would fall below the current spot month limit, the Exchange would make a good faith effort to resolve conditions potentially limiting the adequacy of the deliverable supply or evaluate whether there is a need to adjust the spot-month position limit for that corresponding contract month.

Long Term Contracts:

There is no readily available data on wheat under long-term contracts or agreements that could not be delivered on futures and should not be counted in deliverable supply estimates. To get a sense of the extent wheat is under long-term agreements and not deliverable, the Exchange reached out to 4 wheat regular delivery firms. Feedback from these firms indicates generally zero (0) percent of wheat in their facilities is under long-term agreement and could not be delivered against Wheat futures. One firm indicated generally zero percent under long-term agreement but at the very most five percent during some limited time frames. Given this feedback and the conservative nature of the estimate, the Exchange does not believe wheat stocks under long-term agreements significantly affect deliverable supply.

ANALYSIS OF DELIVERABLE SUPPLY

Based on the above analysis, the Exchange estimates the monthly deliverable supply over the past five years to be 64.95 million bushels or **12,990** contract equivalents (contract size: 5,000 bushels). The current spot month limit of 600 contracts represents **4.6%** of this estimated monthly deliverable supply.