

BOARD OF TRADE OF THE CITY OF CHICAGO INC.

ANALYSIS OF DELIVERABLE SUPPLY

SOYBEAN FUTURES

AUGUST 2018

In estimating deliverable supply for the Soybean 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:

Soybeans are the second largest crop produced in the United States. They are crushed to extract their oil and high protein meal. Soybean meal is primarily used as a feed ingredient for livestock, while soybean oil is primarily used in food processing. USDA estimates that the 2017/18 U.S. soybean crop was 4.392 billion bushels, a 2.23 percent increase compared to the 2016/17 crop. The USDA is currently projecting an even larger harvest for 2018/19.

Soybean Futures Delivery Capacity (Updated Annually):

Soybean shipping certificates can be issued by any of the currently regular for delivery facilities located in the following territories as defined for delivery in CBOT Soybean futures:

- A. Chicago and Burns Harbor, Indiana Switching District - The Chicago Switching District will be that 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. Burns Harbor, Indiana Switching District will be that 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. Lockport-Seneca Shipping District - The Lockport-Seneca Shipping District will be that portion of the Illinois Waterway below river mile 304 at the junction of the Calumet Sag Channel and the Chicago Sanitary & Ship Canal and above river mile 244.6 at the Marseilles Lock and Dam.
- C. Ottawa-Chillicothe Shipping District - The Ottawa-Chillicothe Shipping District will be that portion of the Illinois Waterway below river mile 244.6 at the Marseilles Lock and Dam and at or above river mile 170 between Chillicothe and Peoria, IL.

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

- D. Peoria-Pekin Shipping District - The Peoria-Pekin Shipping District will be that portion of the Illinois Waterway below river mile 170 between Chillicothe and Peoria, IL and at or above river mile 151 at Peoria, IL.
- E. Havana-Grafton Shipping District - The Havana-Grafton Shipping District will be that portion of the Illinois Waterway below river mile 151 at Peoria, IL to river mile 0 at Grafton, IL.
- F. St. Louis-East St. Louis and Alton Switching Districts - The St. Louis-East St. Louis and Alton Switching Districts will be that portion of the upper Mississippi River below river mile 218 at Grafton, IL and above river mile 170 at Jefferson Barracks Bridge in south St. Louis, MO.

Facilities approved for delivery on Soybean futures 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, or in the case of the Chicago and Burns Harbor delivery territory, their registered storage capacity. As of August 2018, firms regular for delivery on CBOT Soybean futures had approved capacity to issue 17,435 shipping certificates or 87.18 million bushels of soybeans.

Below are the facilities regular for delivery on Soybeans 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	Maximum Certificates Deliverable
Cargill, Inc.	Burns Harbor, IN	1,553
COFCO International Grains US LLC	Chicago, IL	2,462
Cargill, Inc.	Morris, IL	440
CHS Inc.	Morris, IL	220
ADM Grain Company	Morris-E, IL	220
Cargill, Inc.	Seneca, IL	440
ADM Grain Company	Ottawa-N, IL	440
Cargill, Inc.	Ottawa, IL	440
ADM Grain Company	Ottawa-S, IL	220
Maplehurst Farms, Inc.	Ottawa, IL	220
Zen-Noh Grain Corporation	Utica, IL	220
Consolidated Grain and Barge Co.	Utica, IL	220
Zen-Noh Grain Corporation	Peru, IL	220
Consolidated Grain and Barge Co.	Peru, IL	220
CHS Inc.	Peru, IL	220
ADM Grain Company	Spring Valley, IL	220
Cargill, Inc.	Spring Valley, IL	440
ADM Grain Company	Hennepin, IL	440
Zen-Noh Grain Corp.	Hennepin, IL	220
Consolidated Grain and Barge Co.	Hennepin, IL	220
ADM Grain Company	Lacon, IL	220
Cargill, Inc.	Lacon, IL	440
ADM Grain Company	Creve Coeur, IL	440
Cargill, Inc.	Havana-N, IL	440
Cargill, Inc.	Havana-S, IL	440
ADM Grain Company	Havana-N, IL	220
ADM Grain Company	Havana-S, IL	440
Cargill, Inc.	Beardstown, IL	440
ADM Grain Company	Beardstown, IL	220
Cargill, Inc.	Meredosia, IL	440
ADM Grain Company	Naples, IL	220
Zen-Noh Grain Corp.	Naples, IL	220
Consolidated Grain and Barge Co.	Naples, IL	220

Firm	Location	Maximum Certificates Deliverable
Cargill, Inc.	Florence, IL	440
CHS, Inc.	Beardstown, IL	220
CHS, Inc.	Havana, IL	220
CHS, Inc.	St. Louis, MO	220
ADM Grain Company	St. Louis, MO	880
Bunge North America	Fairmont City, IL	440
Cargill, Inc.	E. St. Louis, IL	440
Consolidated Grain & Barge Co.	Cahokia, IL	220
Louis Dreyfus Company River Elevators LLC	Cahokia, IL	220
COFCO GROWMARK LLC	Cahokia, IL	440

Soybean Futures Deliverable Supply Procedures and Estimate (Updated Annually):

Each Tuesday the Registrar's Office publishes soybeans 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 quantity of soybeans shipped through Lock 27² on the Mississippi River, which is a measure of soybeans that flow through the Illinois River delivery territory for Soybean futures.

Deliverable supply is estimated as the stocks of grain in regular facilities on the Friday prior to First Notice Day plus the quantity of soybeans that pass through Lock 27 on the Mississippi River during the four weeks prior to First Notice Day. The Exchange believes these measures capture supply going into the delivery period and is the relevant supply to consider when estimating what would be available for each contract expiration. Mississippi River Lock 27 soybean movements capture down-bound soybeans that have traveled along the Illinois River and by the Illinois River delivery facilities and the down-bound soybeans that have traveled along the Mississippi River and by the St. Louis, East St. Louis, and Alton delivery territory facilities. This is likely a very conservative estimate of deliverable supply because it does not count the significant quantity of soybeans that are likely to enter export channels and could be economically placed into delivery position. While this analysis 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 exceed the stocks reported in the Stocks of Grain report³. Regular delivery facilities are in position to load barges for export; thus, the value of grain in a delivery facility is greater than the value in the country because grain in the country destined for export needs to be transported to a barge loading facility. The cost to store grain includes opportunity cost, and opportunity costs increase with value. Thus, the cost to store grain in position at a regular delivery facility is greater than the cost to store in the country all other factors equal. If there is grain being stored in position at a barge loading facility, it suggests demand for grain in the export market, and theory would suggest a greater amount of stocks destined for export would be stored internally due to the lower cost. The Exchange may, at a later date, decide to estimate these stocks and included them in future deliverable supply estimates.

² http://marinas.com/view/lock/103_Chain_of_Rocks_Lock_27_Granite_City_IL_United_States

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

Futures Contract Expiration	Soybean Movement through Lock 27 on the MS River during the 4 Weeks Prior to FND (1M Bushels)	Stocks of Soybeans in Regular Facilities on the Friday prior to FND (1M Bushels)	Total Stocks (1M Bushels)
Jan-17	39.63	10.24	49.87
Jan-16	41.56	7.67	49.23
Jan-15	33.53	3.94	37.47
JAN AVG	38.24	7.28	45.52
Mar-17	8.93	9.21	18.14
Mar-16	15.27	4.07	19.34
Mar-15	14.4	3.57	17.97
MAR AVG	12.87	5.62	18.48
May-17	19.2	15.18	34.38
May-16	15.43	11.55	26.98
May-15	16.03	3.36	19.39
MAY AVG	16.89	10.03	26.92
Jul-17	30	15.99	45.99
Jul-16	18.77	14.68	33.45
Jul-15	17.3	2.95	20.25
JUL AVG	22.02	11.21	33.23
Aug-17	35.9	12.74	48.64
Aug-16	44.33	8.78	53.11
Aug-15	24.03	2.58	26.61
AUG AVG	34.75	8.03	42.79
Sep-17	49.63	7.12	56.75
Sep-16	49.5	2.85	52.35
Sep-15	15.93	1.31	17.24
SEP AVG	38.35	3.76	42.11
Nov-17	34.43	13.89	48.32
Nov-16	53.1	11.34	64.44
Nov-15	47.53	7.09	54.62
NOV AVG	45.02	10.77	55.79
AVG ALL DELV MONTHS	29.73	8.10	37.84

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.

Locational Differentials:

Updates to locational differentials in Soybean futures take effect with the January 2019 contract deliveries. Previous differentials were based on barge freight rates of between 100 and 120 percent of tariff⁴. This will increase to approximately 325 percent of tariff with January 2019 deliveries. The new differentials will be based on barge rates significantly closer to current values, resulting in the potential for deliveries to occur across more locations. While difficult to measure the effect, the update to delivery differentials should enhance deliverable supply.

Long Term Contracts:

There is no readily available data on soybeans 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 soybeans are under long-term agreements and not deliverable, the Exchange reached out to 4 soybean regular delivery firms. Feedback from these firms indicates generally zero (0) percent of soybeans in their facilities are under long-term agreement and could not be delivered against Soybean 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 soybean 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 three years to be 37.84 million bushels or **7,568** contract equivalents (contract size: 5,000 bushels). The current spot month limit of 600 contracts represents **7.9%** of this estimated monthly deliverable supply.

⁴ For an explanation of barge rates and how barge tariffs work, see <https://www.ams.usda.gov/sites/default/files/media/Explanation%20of%20Barge%20Rates.pdf>.