



United States Department of Agriculture
Agricultural Marketing Service

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Importance of Inland Waterways to U.S. Agriculture

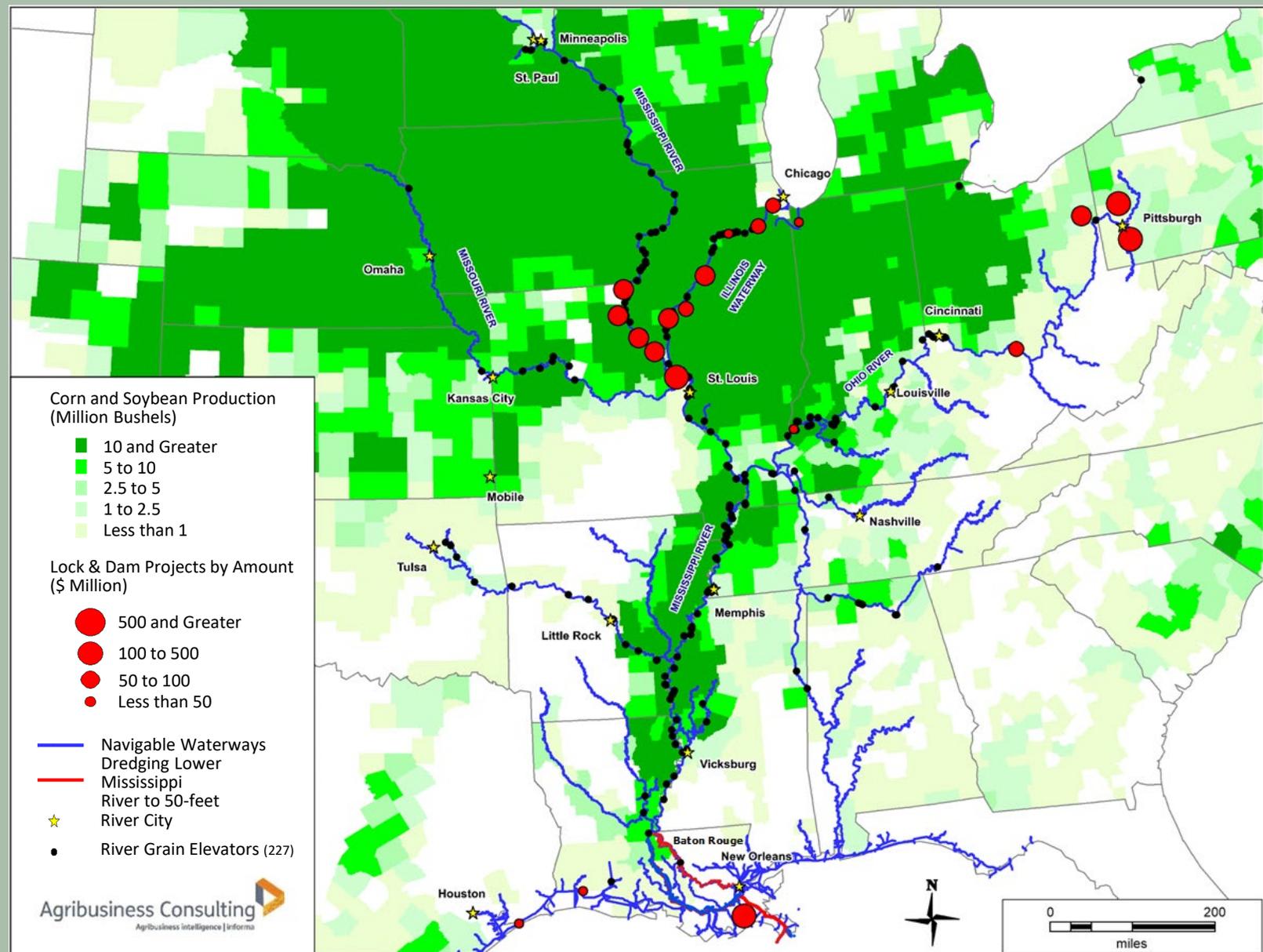
Analyzing Three Investment Scenarios

August 2019



Barge tow on Chain of Rocks Canal of
Mississippi River above St. Louis

America's Heartland Requires a Reliable Transportation Corridor



Density of U.S. Corn and Soybean Production Areas in Proximity to the Navigable Waterways on the Mississippi River System Depicted in Map

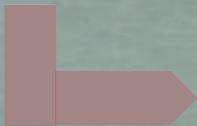


U.S. Agriculture's Competitiveness Depends on Inland Waterways

Infrastructure is critical to competitiveness of U.S. farmers

INADEQUATE INFRASTRUCTURE

Leads to lower effective transportation capacity



REDUCED TRANSPORTATION CAPACITY

Leads to higher freight rates; more dependency on truck and rail



HIGHER FREIGHT RATES

Leads to lower farm income; more road congestion; more rail service problems



LOWER FARM INCOME

Leads to lower U.S. economic activity



LOSS OF GLOBAL COMPETITIVENESS

Without infrastructure investment, the farmer is less competitive globally

The background photo depicts broken wickets at Locks and Dam 52 along the Ohio River. The Corps of Engineers replaced Locks and Dam 52 and 53 with Olmsted Locks and Dam in 2018. At the time of this photo the wickets exceeded their lifespan by nearly 40 years.

Inland Waterway Investment Grows American Economy

STATUS QUO INVESTMENT

Current funding trends continue to 2045 for new construction, major rehabilitation and performing routine maintenance (totaling \$29.6B).

Total Cumulative Economic Impact to 2045

Employment **395,000**

GDP **\$185 B**

Sales **\$354 B**

INCREASED INVESTMENT

Increased funding to construct all authorized projects (\$6.3B) in 10 years, including increased funding to 2045 to rehabilitate existing locks and perform routine maintenance (totaling \$35.9B).

Increase Over Status Quo:

↑ \$6.3 Billion

Total Cumulative Economic Impact to 2045

Employment **472,000** ↑ 77,000
↑ 20%

GDP **\$258 B** ↑ \$72 B
↑ 39%

Sales **\$496 B** ↑ \$142 B
↑ 40%

REDUCED INVESTMENT

Gradually decreasing funding through 2045 for operation and maintenance, leading to decreased reliability. No construction of authorized projects (totaling \$15.3B).

Decrease From Status Quo:

↓ \$14.3 Billion

Total Cumulative Economic Impact to 2045

Employment **323,000** ↓ 72,000
↓ 18%

GDP **\$115 B** ↓ \$70 B
↓ 38%

Sales **\$220 B** ↓ \$133 B
↓ 38%

More Investment = More Farm Exports Less Investment = Less Farm Exports

FARM PRODUCT VOLUME

The inland navigable waterways are essential to moving farm products to grain export elevators along the Gulf.

Total Cumulative Volume Impact to 2045
(Million Tons)

Status Quo 160.8

Increased 216.7

↑ 55.9
↑ 35%

Reduced 86.4

↓ 74.4
↓ 46%

MARKET VALUE

U.S. corn and soybean farmers are the most efficient in the world. Our country's waterways and multimodal transportation network provides a competitive edge in global markets.

Total Cumulative Market Value Impact to 2045

Increased Investment
+\$39 Billion

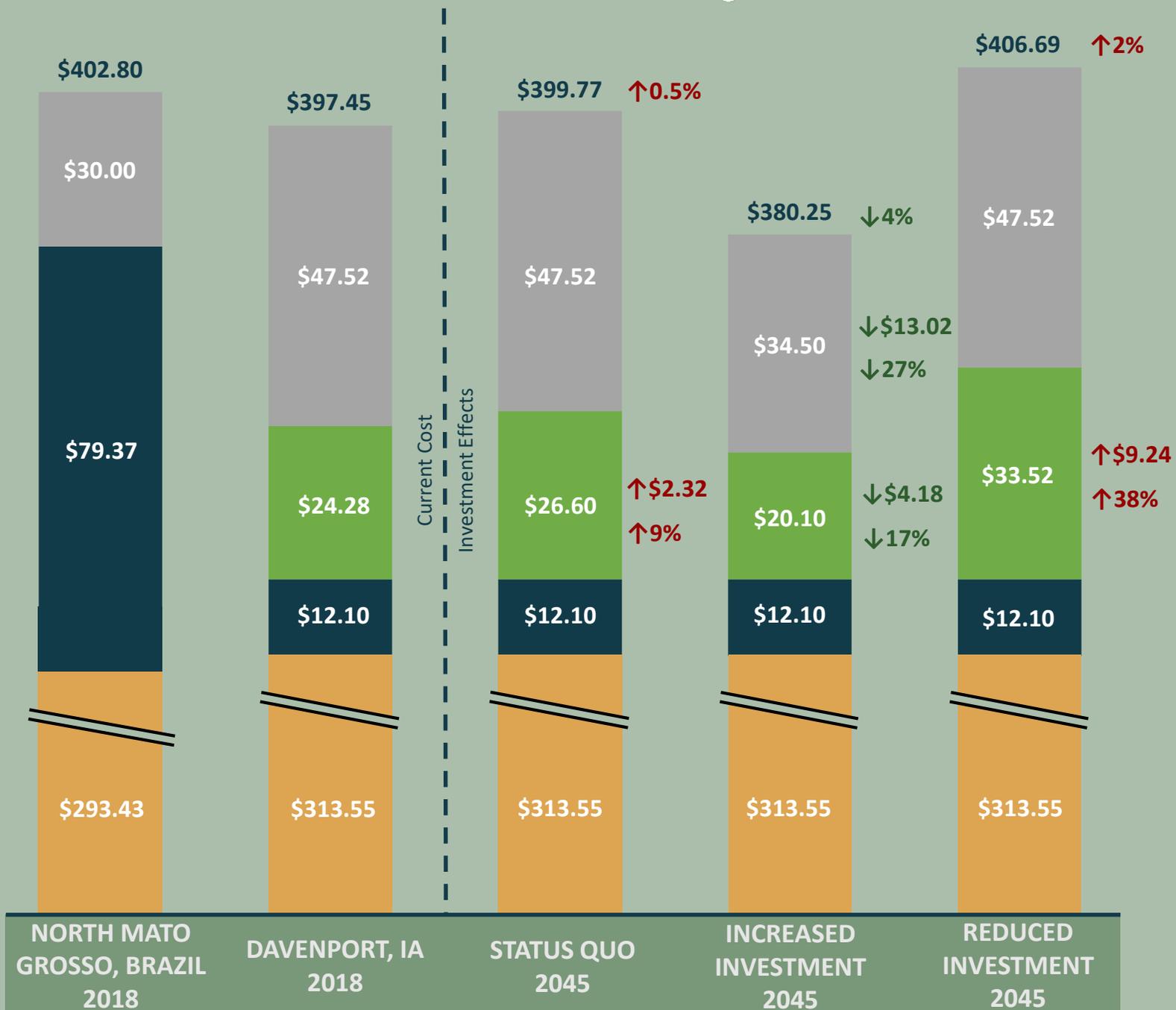
Reduced Investment
-\$58 Billion

Range of
\$97 Billion

Increased Investment Enhances Competitiveness by Reducing Shipping Costs

SOYBEAN COST TO SHANGHAI, CHINA

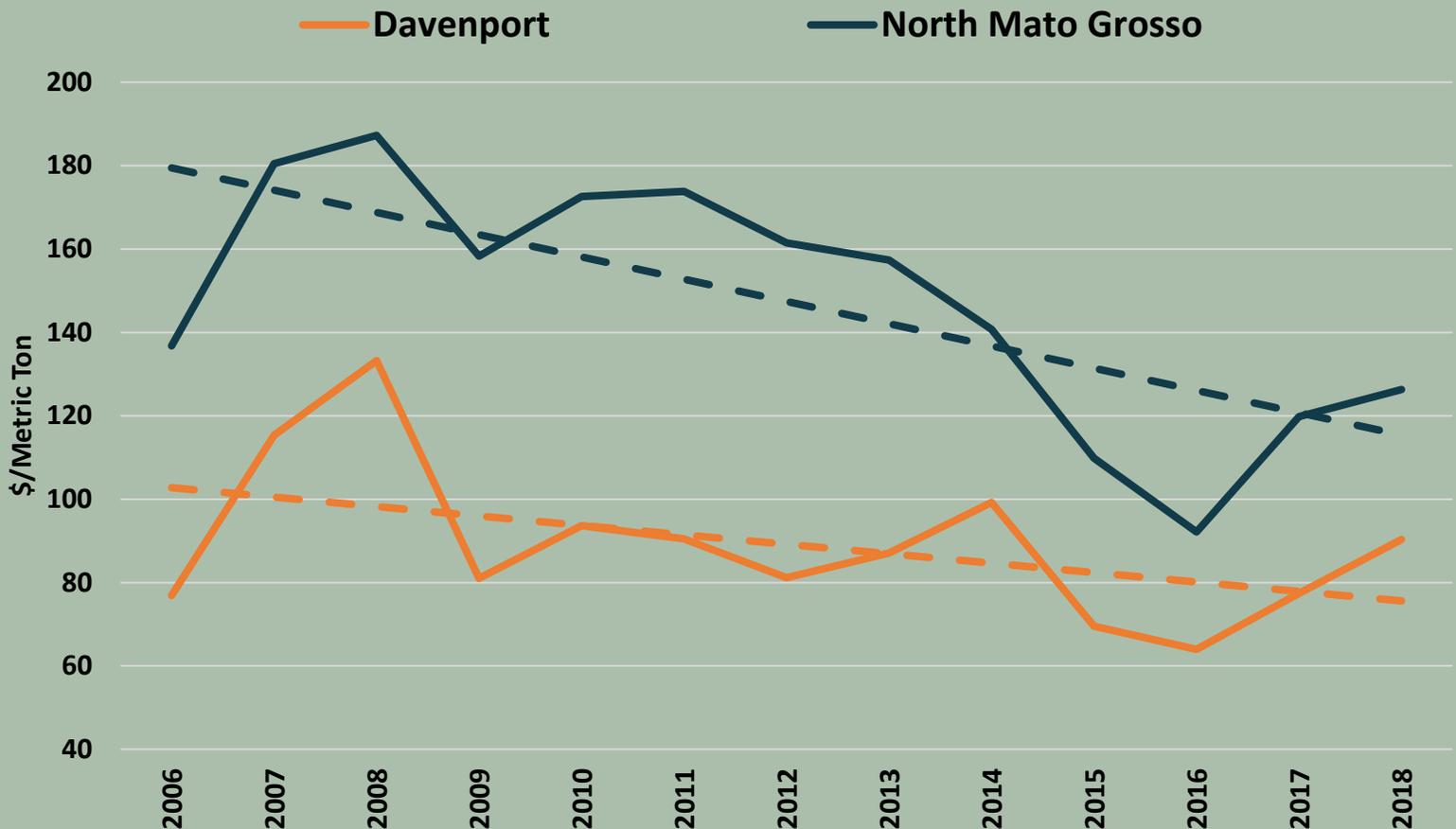
■ Farm Value
 ■ Truck
 ■ Barge
 ■ Ocean
 Units are in \$/MT



Infrastructure Investment is critical for competitiveness of the U.S. farmer. Infrastructure investment leads to higher transportation capacity; higher transportation capacity leads to lower freight rates; lower freight rates lead to higher farmer returns. Without infrastructure investment, both the U.S. farmer and the American economy lose to global competitors.

Will the U.S. Retain its Competitive Advantage?

SOYBEAN TRANSPORTATION COSTS TO CHINA: U.S. vs. BRAZIL



RECENT NEWS HEADLINES

China investment in Brazil hit seven-year high in 2017

<https://www.reuters.com/article/us-brazil-china-investment/china-investment-in-brazil-hit-seven-year-high-in-2017-idUSKBN1F7387>

Brazil wants China to invest in its infrastructure

<https://finance.yahoo.com/news/brazil-wants-china-invest-infrastructure-194842132.html>

China to invest \$50bn in Brazil infrastructure

<https://www.bbc.com/news/business-32747454>

AMERICAN INFRASTRUCTURE IMPERATIVE

- Higher and consistent inland waterway investment is needed to ensure the long-term prosperity of U.S. agriculture
- The Navigation & Ecosystem Sustainability Program (NESP) is essential for the competitiveness of the heartland corridor – its Pre-construction Engineering & Design (PED) funding is necessary before construction can begin. Pending PED funding for NESP is time-sensitive.

Increased Investment Leads to Stronger Economy for Decades

| Potential Investments | River State | River Mile | Amount (\$Million) |
|--|-------------------------------|------------|--------------------|
| NAVIGATION & ECOSYSTEM SUSTAINABILITY PROGRAM (NESP) PROJECTS - AWAITING CONSTRUCTION | | | |
| LaGrange Lock | Illinois River/IL | 80 | \$361.3 |
| Peoria Lock | Illinois River/IL | 158 | \$362.5 |
| Upper Mississippi River Lock and Dam 20 | Mississippi River/MO | 343 | \$326.3 |
| Upper Mississippi River Lock and Dam 21 | Mississippi River/MO | 325 | \$454.2 |
| Upper Mississippi River Lock and Dam 22 | Mississippi River/MO | 301 | \$376.6 |
| Upper Mississippi River Lock and Dam 24 | Mississippi River/MO | 273 | \$438.3 |
| Upper Mississippi River Lock and Dam 25 | Mississippi River/MO | 241 | \$548.5 |
| PROJECTS AWAITING CONSTRUCTION | | | |
| Brazos High Island | Gulf Intracoastal Waterway/TX | | \$17.6 |
| Brazos River to Port O'Connor | Gulf Intracoastal Waterway/TX | | \$22.2 |
| Calcasieu Lock | Gulf Intracoastal Waterway/TX | 63 | \$16.9 |
| Dashiels Lock | Ohio River/PA | 13 | \$808.7 |
| Dredging Lower-Mississippi River to 50ft | Mississippi River/LA | | \$159.1 |
| Emsworth Lock | Ohio River/PA | 6 | \$744.4 |
| Inner Harbor Navigation Canal Lock | Mississippi River/LA | 63 | \$1,009.9 |
| Montgomery Lock | Ohio River/PA | 32 | \$362.5 |
| MAJOR REHABILITATION PROJECTS | | | |
| Brandon Road Lock | Illinois River/IL | 286 | \$69.2 |
| Dresden Island | Illinois River/IL | 271.5 | \$50.5 |
| Greenup Lock | Ohio River/OH & KY | 341 | \$55.0 |
| J.T. Myers Lock | Ohio River/IN & KY | 846 | \$45.2 |
| Starved Rock | Illinois River/IL | 231 | \$30.3 |
| TJ O'Brien | Illinois River/IL | 327 | \$47.0 |
| TOTAL | | | \$6,306 |

The projects and costs listed above are based on the USACE's 2016 Capital Investment Strategy

Waterways Benefits by State

| State | Commodity | Employment | GDP (\$ Million) | Sales (\$ Million) |
|-------------|-----------|------------|---------------------|-----------------------|
| Arkansas | Corn | 1,171 | 49.1 | 154.8 |
| | Soybean | 7,805 | 746.4 | 1,433.4 |
| | Total | 8,976 | 795.6 | 1,588.2 |
| Illinois | Corn | 8,684 | 622.5 | 1,880.5 |
| | Soybean | 9,960 | 1,062.8 | 2,946.7 |
| | Total | 18,644 | 1,685.3 | 4,827.2 |
| Indiana | Corn | 1,654 | 96.8 | 291.6 |
| | Soybean | 4,377 | 454.8 | 1,036.7 |
| | Total | 6,031 | 551.6 | 1,328.3 |
| Iowa | Corn | 812 | 68.5 | 221.8 |
| | Soybean | 10,137 | 1,408.0 | 3,038.2 |
| | Total | 10,949 | 1,476.6 | 3,260.0 |
| Kentucky | Corn | 2,599 | 80.8 | 271.7 |
| | Soybean | 4,604 | 294.5 | 708.7 |
| | Total | 7,203 | 375.3 | 980.3 |
| Louisiana | Soybean | 3,471 | 255.9 | 552.8 |
| | Total | 3,471 | 255.9 | 552.8 |
| Minnesota | Corn | 1,317 | 90.4 | 281.9 |
| | Soybean | 5,583 | 667.9 | 1,446.4 |
| | Total | 6,900 | 758.3 | 1,728.2 |
| Mississippi | Corn | 1,129 | 47.7 | 148.1 |
| | Soybean | 5,234 | 478.0 | 946.3 |
| | Total | 6,364 | 525.7 | 1,094.4 |
| Missouri | Corn | 1,267 | 50.4 | 171.3 |
| | Soybean | 8,280 | 566.6 | 1,564.9 |
| | Total | 9,547 | 617.0 | 1,736.3 |
| Ohio | Corn | 381 | 16.5 | 49.9 |
| | Soybean | 4,861 | 327.2 | 882.2 |
| | Total | 5,242 | 343.6 | 932.1 |
| Tennessee | Corn | 1,284 | 34.9 | 102.5 |
| | Soybean | 4,876 | 221.1 | 595.7 |
| | Total | 6,160 | 255.9 | 698.3 |
| Wisconsin | Corn | 72 | 3.7 | 11.0 |
| | Soybean | 4,097 | 387.7 | 830.8 |
| | Total | 4,170 | 391.3 | 841.7 |

State Economic Impact of U.S. Corn and Soybean Production Destined to Export, in Proximity to the Navigable Waterways on the Mississippi River System, 2016 Depicted in Table