

Impact on Missouri Agriculture

of the Recent Gulf Coast Hurricanes



**Representatives
Skelton and Hulshof**

**Summit on Impact
of Hurricanes on
Mississippi River
Transportation and
Show-Me State
Agriculture
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FAPRI
At the University of Missouri

**Food and Agricultural
Policy Research Institute**

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The Impact on Missouri Agriculture of the Recent Gulf Coast Hurricanes

Missouri agriculture is being hit in two ways from the recent Gulf coast hurricanes. Missouri farmers are facing record energy prices that could likely translate into record production costs when they begin planting next spring. In addition, the damage to Gulf ports combined with low water flows upstream have contributed to large increases in transportation costs for both inputs needed in agriculture and the resulting agricultural products. This combination of higher input costs and lower output prices will certainly squeeze the bottom line for Missouri agriculture as we enter 2006.

It remains extremely difficult to quantify the effects of Hurricane Katrina and Hurricane Rita on Missouri agriculture until more is known regarding the recovery of Gulf ports and the U.S. energy infrastructure. It could be several weeks to months before much of the Gulf port and energy infrastructure returns to a more normal state.

Gulf ports are extremely important to Missouri agriculture as Mississippi Gulf ports typically handle 70 percent of total U.S. corn exports. It is clear that in the near term farmers will see lower bids for their crops and higher input prices as both move through Gulf ports. Some of the biggest issues facing Missouri farmers as a result of Katrina and Rita are:

- 1) Corn basis in central Missouri was \$0.10 per bushel weaker on October 1 than it was on August 15, prior to Katrina. In southeast Missouri, the corn basis has weakened by \$0.38 per bushel over the same period. The weaker corn basis can be attributed to the reduced ability to deliver grain for Gulf export, and higher transportation costs. Basis can be described as the difference between the futures price and local cash price. It represents immediate cash demand, handling charges, transportation, interest, risk, and other costs associated with moving grain. The basis has remained weak despite many gulf ports being open and able to handle grain.
- 2) Similar to corn, soybean basis in central Missouri was \$0.27 per bushel weaker on October 1 compared to August 15. In southeast Missouri, soybean basis has weakened by \$0.38 per bushel over the same period.

Table 1. Missouri Corn Basis

	2000	2001	2002	2003	2004	00-04 Ave	2005	2005 less 00-04 ave
Southeast MO								
	Dollars per bushel							
August 15	-0.16	-0.06	-0.10	0.02	-0.01	-0.06	-0.07	-0.01
September 1	-0.29	-0.26	-0.12	-0.05	-0.11	-0.17	-0.55	-0.38
September 15	-0.27	-0.30	-0.15	-0.01	-0.19	-0.18	-0.42	-0.24
October 1	-0.22	-0.29	-0.06	-0.03	-0.25	-0.17	-0.45	-0.28
Saint Louis								
August 15	-0.12	-0.06	0.02	0.14	0.19	0.03	0.04	0.01
September 1	-0.22	-0.19	0.00	0.03	0.00	-0.08	-0.49	-0.41
September 15	-0.21	-0.20	-0.05	-0.08	-0.14	-0.14	-0.34	-0.20
October 1	-0.18	-0.28	-0.01	-0.02	-0.23	-0.14	-0.38	-0.24
Central MO								
August 15	-0.29	-0.28	-0.32	0.00	-0.08	-0.19	-0.30	-0.11
September 1	-0.42	-0.35	-0.26	-0.25	-0.07	-0.27	-0.39	-0.12
September 15	-0.42	-0.34	-0.23	-0.19	-0.27	-0.29	-0.40	-0.11
October 1	-0.42	-0.31	-0.23	-0.18	-0.25	-0.28	-0.40	-0.12
Kansas City								
August 15	-0.22	-0.18	-0.06	0.02	-0.05	-0.10	-0.20	-0.10
September 1	-0.31	-0.24	-0.12	-0.12	-0.15	-0.19	-0.35	-0.16
September 15	-0.28	-0.21	-0.09	-0.16	-0.14	-0.18	-0.30	-0.12
October 1	-0.24	-0.20	-0.04	-0.05	-0.30	-0.17	-0.30	-0.13

Basis calculations are made using MO Dept of Ag reported daily cash bids for southeast MO, Saint Louis, Kansas City and central MO, along with daily nearby CBOT closing futures prices.

Figure 1. Missouri Corn Basis

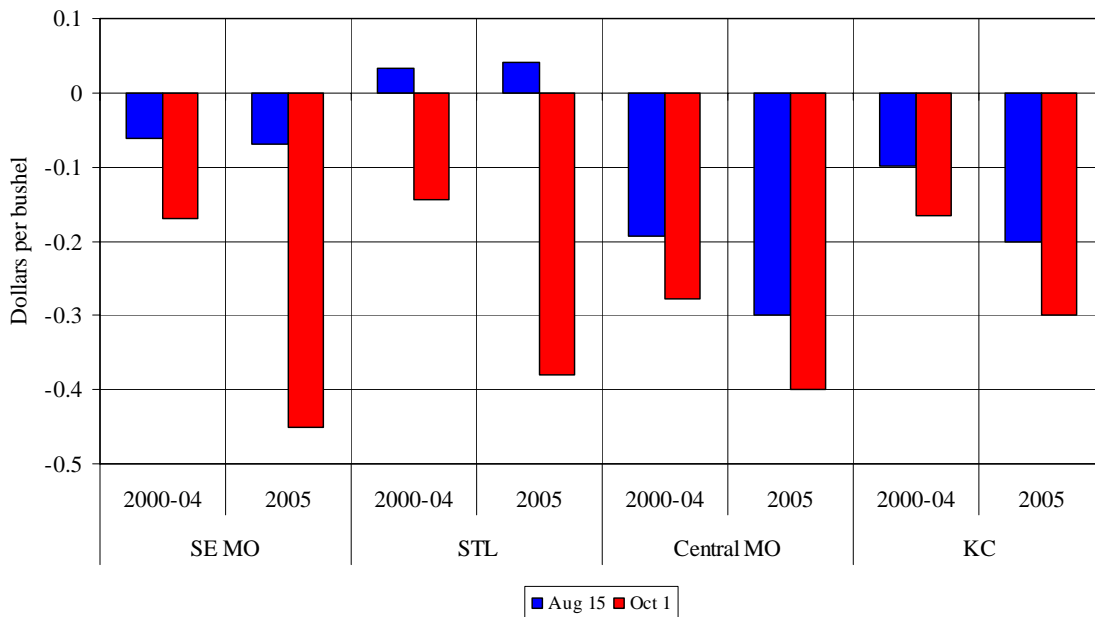
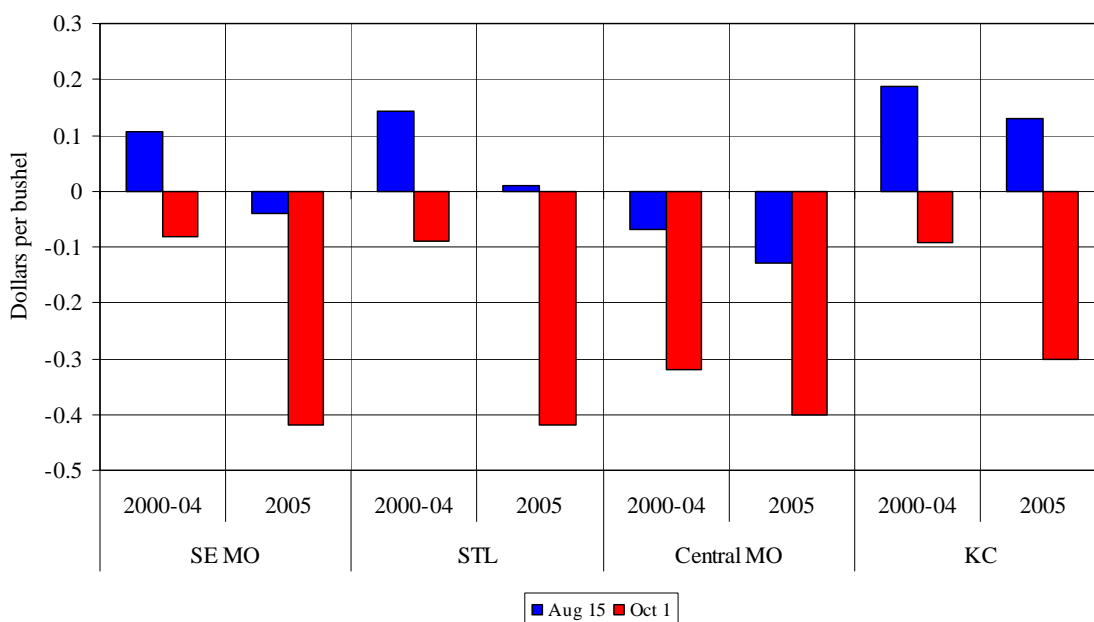


Table 2. Missouri Soybean Basis

	2000	2001	2002	2003	2004	00-04 Ave	2005	2005 less 00-04 ave
Southeast MO								
	Dollars per bushel							
August 15	0.05	0.10	0.13	0.22	0.03	0.11	-0.04	-0.15
September 1	-0.13	-0.03	0.15	0.07	0.08	0.03	-0.50	-0.53
September 15	-0.16	0.03	0.05	0.04	-0.15	-0.04	-0.44	-0.40
October 1	-0.20	-0.08	0.05	-0.02	-0.16	-0.08	-0.42	-0.34
Saint Louis								
August 15	0.05	0.09	0.19	0.25	0.14	0.14	0.01	-0.13
September 1	-0.13	-0.03	0.18	0.18	0.50	0.14	-0.46	-0.60
September 15	-0.20	0.04	0.09	0.16	-0.11	0.00	-0.38	-0.38
October 1	-0.22	-0.13	0.06	-0.04	-0.12	-0.09	-0.42	-0.33
Central MO								
August 15	-0.25	-0.03	-0.11	0.22	-0.17	-0.07	-0.13	-0.06
September 1	-0.35	-0.10	0.03	0.20	0.10	-0.02	-0.32	-0.30
September 15	-0.40	-0.20	-0.25	0.00	-0.20	-0.21	-0.40	-0.19
October 1	-0.41	-0.34	-0.25	-0.25	-0.35	-0.32	-0.40	-0.08
Kansas City								
August 15	0.01	0.11	-0.05	0.39	0.48	0.19	0.13	-0.06
September 1	-0.10	0.04	0.30	0.43	0.50	0.23	-0.17	-0.40
September 15	-0.14	0.25	0.06	0.45	0.30	0.18	-0.15	-0.33
October 1	-0.16	-0.10	-0.05	0.05	-0.20	-0.09	-0.30	-0.21

Basis calculations are made using MO Dept of Ag reported daily cash bids for southeast MO, Saint Louis, Kansas City and central MO, along with daily nearby CBOT closing futures prices.

Figure 2. Missouri Soybean Basis



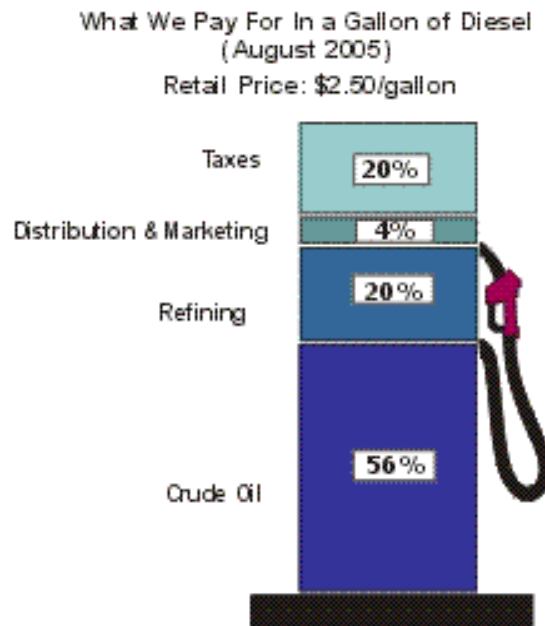
- 3) According to the Department of Energy, farmers are currently paying about \$1 more per gallon for diesel fuel than they did during harvest last year (diesel prices have increased over \$0.50 per gallon since Katrina and Rita hit). That should add about \$5 per acre to this year's harvest costs for corn. Diesel prices are continuing to remain at record levels with on-highway retail #2 diesel reaching \$3.14 per gallon for the week of October 2, 2005. Crude oil represents nearly one half of the cost of a gallon of retail on-highway diesel fuel.

Table 3. U.S. On-Highway Retail #2 Diesel Prices

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Cents per gallon											
1995	109.8	108.8	108.8	110.4	112.6	112.0	110.0	110.5	111.9	111.5	112.0	113.0
1996	114.5	114.5	118.3	127.5	127.3	120.1	117.6	120.1	126.5	132.3	132.3	130.9
1997	129.1	128.0	122.9	121.2	119.6	117.3	115.1	116.5	116.0	118.3	119.2	116.6
1998	112.0	108.4	106.3	106.7	106.9	104.1	102.9	100.7	102.4	103.9	102.2	97.3
1999	96.7	95.9	99.7	107.9	107.3	107.4	112.2	117.2	121.5	122.8	126.3	129.2
2000	135.6	146.1	147.9	142.2	142.0	142.1	143.4	146.6	163.7	163.7	162.1	156.5
2001	152.4	149.2	139.9	142.2	149.6	148.2	137.5	139.0	149.5	134.8	125.9	116.7
2002	115.3	115.2	123.0	130.9	130.5	128.6	129.9	132.8	141.1	146.2	142.0	142.9
2003	148.8	165.4	170.8	153.3	145.1	142.4	143.5	148.7	146.7	148.1	148.2	149.0
2004	155.1	158.2	162.9	169.2	174.6	171.1	173.9	183.3	191.7	213.4	214.7	200.9
2005	195.9	202.7	221.4	229.2	219.9	229.0	237.3	250.0	281.9			

Source: <http://tonto.eia.doe.gov/oog/info/wohdp/diesel.asp>

Figure 3. Cost Components of a Retail Gallon of Diesel Fuel



- 4) Current anhydrous ammonia price quotes in Missouri are running \$50 to \$125 per ton higher than spring 2005 prices, and several industry experts are concerned about availability issues for next spring. Natural gas prices have a major impact on fertilizer prices, especially nitrogen. Anhydrous ammonia is the source of most nitrogen fertilizer and natural gas accounts for 80 percent or more of the cost of producing ammonia. Increasing natural gas prices in the United States have led to the shut down or closing of many domestic nitrogen plants. In fact, at current natural gas and anhydrous ammonia prices, it appears unprofitable for remaining U.S. facilities to produce. This has tightened anhydrous ammonia supplies and the United States now relies on imports for nearly half of all nitrogen supplies. Transportation problems are only adding to fertilizer supply and pricing worries making it difficult for dealers to make product inventory decisions for next year. The bottom line for Missouri producers is potential fertilizer supply problems and higher 2006 crop production costs.
- 5) Reports indicate some elevators in Southeast Missouri are quoting up to a \$0.09 per bushel discount per point of excess moisture in corn to offset increased drying costs associated with the higher natural gas prices.

Figure 4. 2005 Weekly Ammonia Prices, fob Caribbean

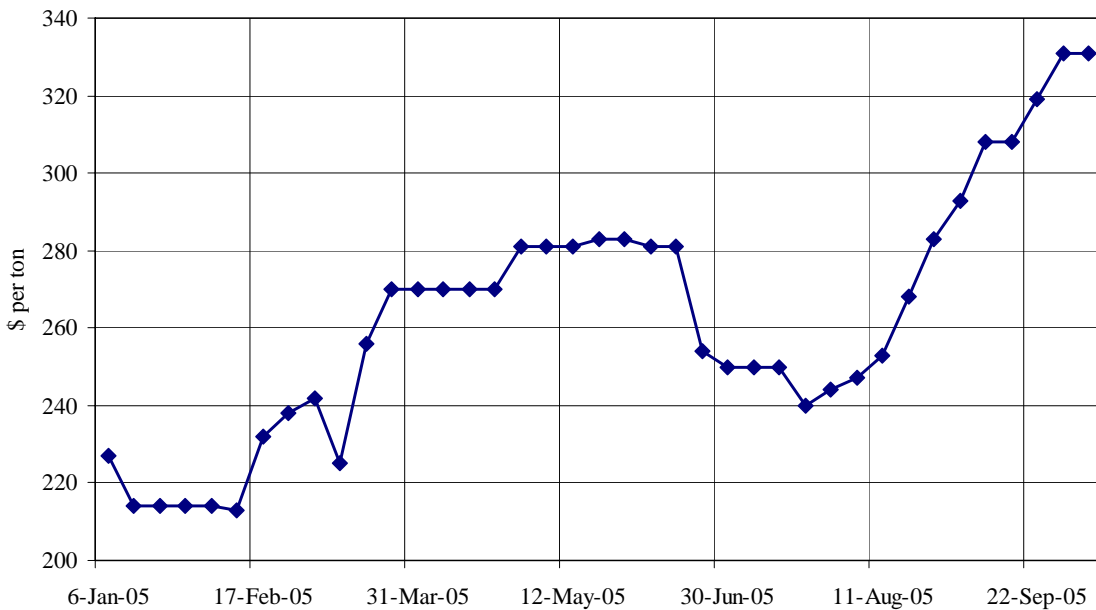
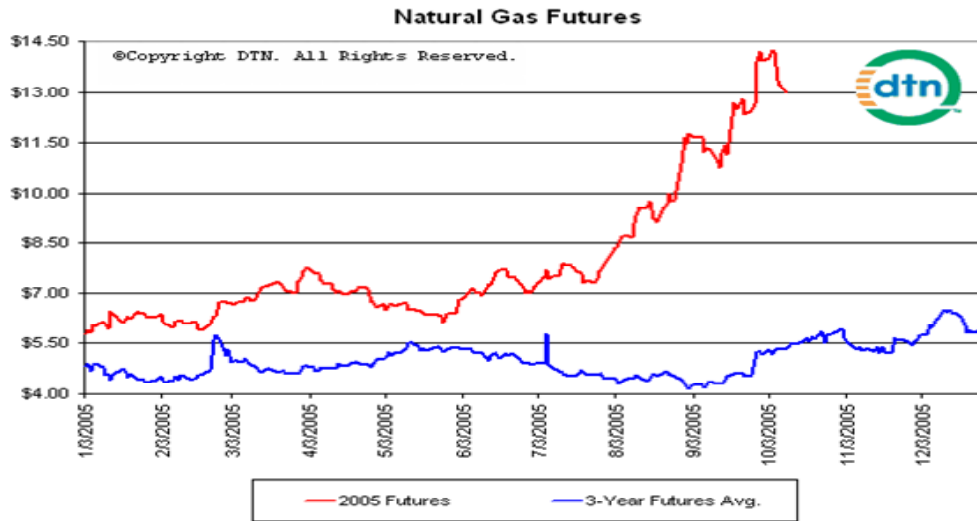


Table 4. U.S. Natural Gas Wellhead Prices

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Dollars per MMBtu												
1995	1.58	1.44	1.43	1.48	1.51	1.54	1.39	1.39	1.48	1.50	1.57	1.79
1996	2.00	1.84	1.90	2.03	1.96	2.03	2.19	2.04	1.80	1.89	2.43	3.17
1997	3.31	2.42	1.74	1.76	1.95	2.03	1.95	2.03	2.27	2.61	2.84	2.22
1998	1.91	1.91	2.01	2.10	1.99	1.86	2.04	1.77	1.66	1.81	1.89	1.90
1999	1.80	1.72	1.66	1.85	2.11	2.08	2.14	2.44	2.55	2.45	2.61	2.18
2000	2.53	2.66	2.59	2.78	2.96	3.67	3.74	3.63	4.15	4.46	4.28	5.62
2001	6.64	4.95	4.26	4.40	4.25	3.69	3.26	3.24	2.85	2.71	3.32	3.33
2002	2.43	2.13	2.34	2.86	2.86	2.88	2.84	2.69	2.89	3.15	3.50	3.86
2003	4.31	4.92	6.78	4.35	4.64	5.27	4.95	4.34	4.47	4.21	4.15	4.63
2004	5.38	5.01	4.84	5.06	5.48	5.70	5.45	5.22	4.73	5.31	5.91	6.09
2005	5.37	5.44	5.82	6.27	5.86	5.99	6.51	7.48	9.50			

Sources: http://tonto.eia.doe.gov/dnav/ng/xls/ng_pri_sum_a_EPG0_FWA_DMcf_m.xls
<http://tonto.eia.doe.gov/oog/info/ngw/ngupdate.asp>

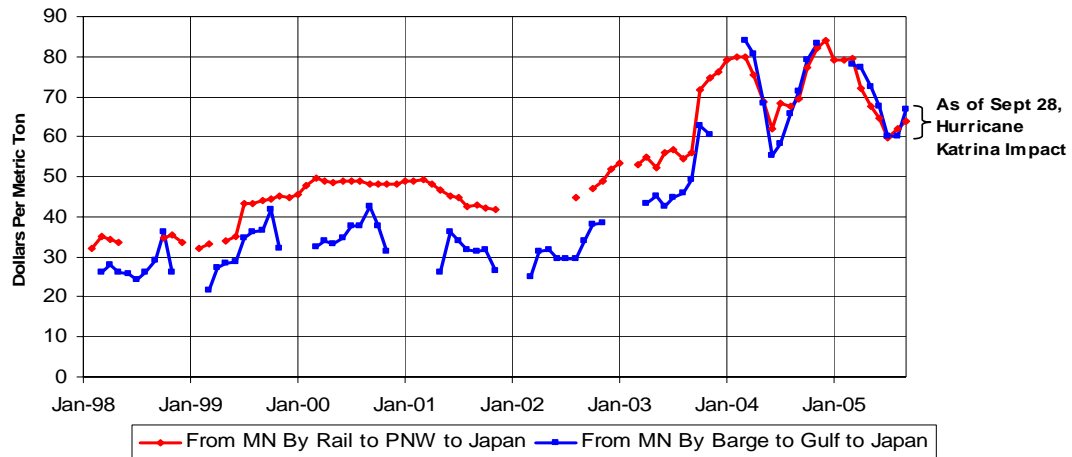
Figure 5. U.S. Natural Gas Futures



Current information regarding Gulf ports and transportation

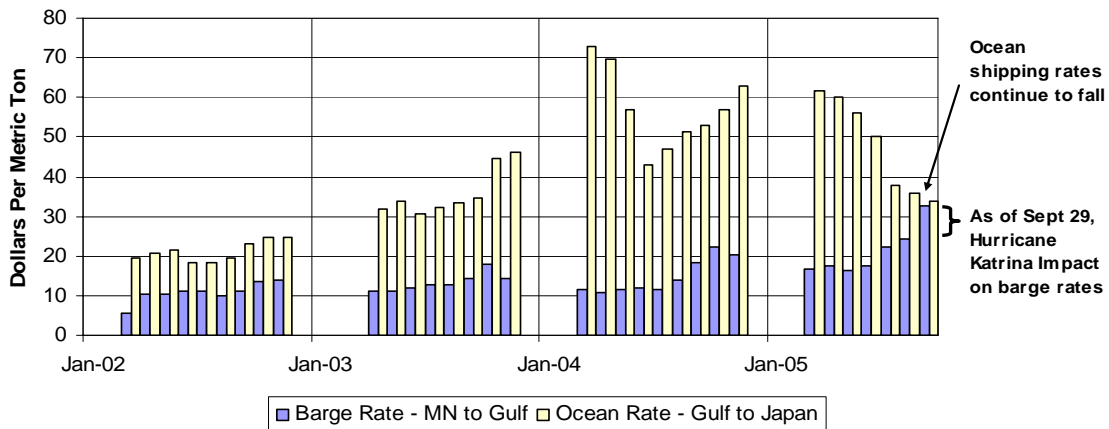
- 1) Barge rates typically run about 50 to 60 percent of rail rates and about 25 to 33 percent of truck rates. In the weeks since Hurricane Katrina barge rates have doubled, putting them close to rail rates.
- 2) Barge rates quoted on southbound freight from the Illinois River have increased 93 percent since Katrina, rising from \$16.77 to \$32.37 per metric ton (adding about \$0.40 per bushel in transportation costs). Source: <http://www.ams.usda.gov/tmdtsb/grain/>
- 3) Low water levels on the upper Mississippi, congestion at the export ports, and a tight supply of barges are the primary reasons for the increase in barge rates.
- 4) Secondary rail car rates have also increased by \$425 per car between August 13 and September 28. That translates into a \$0.12 per bushel increase in transportation costs. Source: <http://www.ams.usda.gov/tmdtsb/grain/>
- 5) Mississippi Gulf port grain inspections for export are running at 63 percent, 84 percent, and 129 percent of 2004 levels, for wheat, corn and soybeans, respectively, as September 29, 2005. Source: <http://www.ams.usda.gov/tmdtsb/grain/>
- 6) Current barge rates in combination with ocean rates have pushed the cost of moving grain from Minnesota to Japan via barge \$2.89 per ton (\$0.08 cents per bushel) above rail costs (based on rail quotes from early September). Source: FAPRI calculations based on data from the USDA/AMS "Grain Transportation Report."
- 7) All indications are that minimal damages were experienced at export grain elevators from both hurricanes. Recalling personnel continues to be the most significant barrier to full operation. Source: Randall Gordon, National Grain and Feed Association.
- 8) The Mississippi River navigation has been reestablished without restrictions with the exception of the Southwest Pass where a safety zone for navigation limits navigation to one way traffic in daylight hours. Navigation aids are in the process of being replaced to restore this area to full operation. Source: Randall Gordon, National Grain and Feed Association.

Transportation Cost of Moving Corn From Minnesota to Japan



Data Source: Weekly Grain Transportation Reports, USDA/AMS

Transportation Cost of Moving Corn From Minnesota to Japan via Barge



Data Source: Weekly Grain Transportation Reports, USDA/AMS

9) Rail deliveries to all ports are up 15 percent from 2004 year to date levels and deliveries to the Mississippi Gulf are up 30 percent year over year. Prior to hurricane Rita, for the week of September 14, rail deliveries to Texas Gulf ports were up 77 percent from last year's levels. Source: <http://www.ams.usda.gov/tmdtsb/grain/>

10) Unit train rail rates from Chicago to Baton Rouge as of early September were quoted at \$27.67 per metric ton (\$0.70 per bushel) compared with barge rates as of September 28 of \$32.37 per metric ton (\$0.82) (based on rail rates quoted in early September). Source: <http://www.ams.usda.gov/tmdtsb/grain/>