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Midwest Floods of 2008: Potential Impact on Agriculture

Randy Schnepf, Resources, Science, and Industry Division

August 18, 2008

Abstract. In light of current market uncertainties surrounding the 2008/09 supply and demand balance for corn and soybeans, and the outlook for extremely tight supplies by late summer, commodity market prices are likely to remain volatile through the remainder of the growing season. If crop production ultimately proves less than forecast (to be determined at harvest time), it will likely contribute to higher commodity prices, thereby adding to pressure on policymakers over concerns about consumer food price inflation, international food aid availability, and the soundness of policy that dedicates commercial agricultural crops to biofuels production, particularly corn used for ethanol.

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Prepared for Members and
Committees of Congress

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Summary

Unusually cool, wet spring weather followed by widespread June flooding across much of the Corn Belt cast considerable uncertainty over 2008 U.S. corn and soybean production prospects. As much as 5 million acres of crop production were initially thought to be either lost entirely or subject to significant yield reductions. Estimates of flood-related crop damage varied widely due, in part, to a lack of reliable information about the extent of plant recovery or replanting in the flooded areas. These circumstances generated considerable market angst and U.S. agricultural prices for corn and soybeans, as reported on the major commodity exchanges, hit record highs in late June and early July. Since then, most of the Corn Belt has experienced nearly ideal growing conditions suggesting the potential for substantial crop recovery, and market prices have weakened accordingly.

On August 12, 2008, USDA released the first crop production estimates for corn and soybeans that have incorporated survey data from the flood-affected regions. According to USDA, U.S. farmers will produce the second largest corn crop on record — 12.3 billion bushels — in 2008, up about 5% from the previous month's forecast, but down over 6% from last year's record crop. USDA's soybean crop forecast of nearly 3 billion bushels is unchanged from July, but up 15% from 2007. These production forecasts reflect three factors. First, flood-related acreage losses appear to be substantially less than initially projected. Second, nearly ideal growing conditions that have persisted across the Corn Belt since late June have contributed to sharp increases in USDA's yield outlook for corn, thus, offsetting flood-related area losses. Third, despite a 17.6% increase in planted acreage in 2008, soybean production is flat due to a diminished yield outlook — largely the result of the lateness of the crop's planting and development, as well as dry conditions in the Delta, the Southeast, and the Northern Plains.

Congress has appropriated nearly $480 million in emergency USDA funding, primarily for conservation activities in flood-affected regions, as part of the FY2008 Supplemental Appropriations Act (P.L. 110-252). USDA has also committed resources to the flood-affected areas including rescue and clean up, food assistance, housing, community assistance, business assistance, and farmer and rancher assistance. In addition, USDA announced permission, on July 7, 2008, to use CRP land for grazing only in disaster and contiguous counties.

In light of current market uncertainties surrounding the 2008/09 supply and demand balance for corn and soybeans, and the outlook for extremely tight supplies by late summer, commodity market prices are likely to remain volatile through the remainder of the growing season. If crop production ultimately proves less than forecast (to be determined at harvest time), it will likely contribute to higher commodity prices, thereby adding to pressure on policymakers over concerns about consumer food price inflation, international food aid availability, and the soundness of policy that dedicates commercial agricultural crops to biofuels production, particularly corn used for ethanol.

This report will be updated as events warrant.

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Midwest Floods of 2008: Potential Impact on Agriculture

Background

The United States plays a critical role in global markets for both feed grains and oilseeds. The United States is the world's leading producer and exporter of both corn and soybeans. In 2007 the United States had 42% and 63% shares, respectively, of world corn production and trade, and 32% and 41% shares of world soybean production and trade. As a result of this dominant role, unexpected changes in U.S. production for either corn or soybeans, such as those stemming from the Midwest floods of 2008, can have a major impact on both U.S. and global commodity markets.

During the first half of 2008, U.S. and world agricultural markets for most grains and oilseeds experienced tight supplies and record high prices.[1] The high prices provided a tantalizing incentive for U.S. farmers as they prepared to plant their crops this past spring. In contrast, the dramatic, unexpectedly sharp price increases of the past year have raised costs for livestock feeders and agricultural processors, evoked considerable concern about consumer food-price inflation and international food aid availability, and sparked a global debate — referred to as the "food versus fuel" debate — about the increasing policy trend of dedicating commercial agricultural crops to biofuels production, particularly corn used for ethanol.

Against this backdrop of producer anticipation and consumer angst, substantial new concerns emerged by late June about potential weather- and flood-related production losses to this year's U.S. corn and soybean crops. Widespread, good growing conditions have persisted since the floods adding to the uncertainty over crop production prospects.

U.S. Corn Belt. The Corn Belt is a 13-state region located in the Midwest where corn is the predominant cash crop (**Figure 1**). It stretches from Ohio through Indiana, Illinois, Iowa, northern Missouri, southern Wisconsin, and Minnesota to the eastern fringe of the Great Plains states of North and South Dakota, Nebraska, and Kansas. The Corn Belt also includes parts of Michigan and Kentucky. Since 2000, these 13 states have accounted for 89% of U.S. corn production (**Table 3**). Iowa and Illinois, in the heart of the Corn Belt, are the two leading corn-producing states with a combined production share of 36%. Similarly, 88% of U.S. soybean production occurs in the 13 Corn Belt states, with Iowa and Illinois again the two leading producers with a combined share of 32% (**Table 4**).

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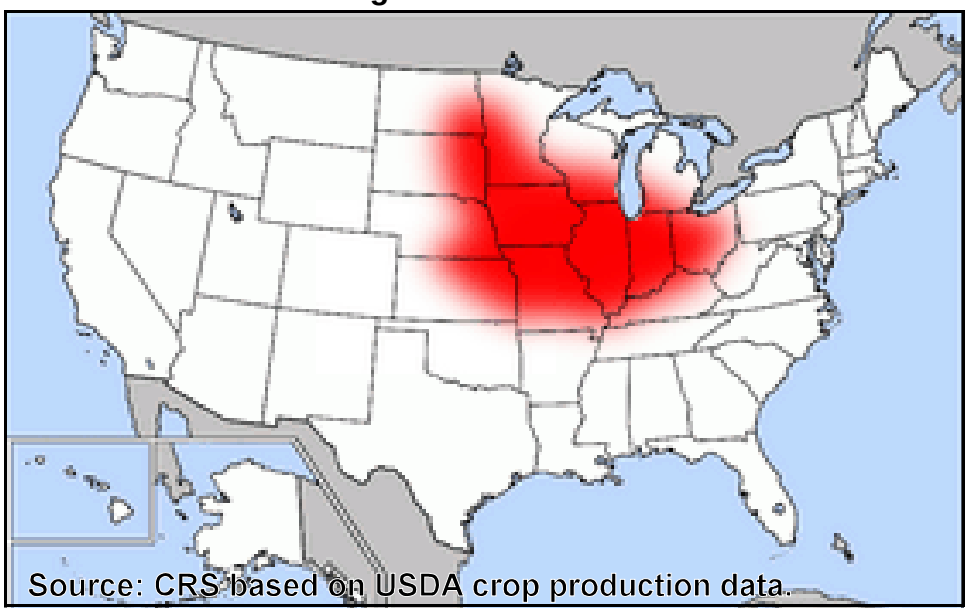
[1] For more information, see CRS Report RL34474, *High Agricultural Commodity Prices: What Are the Issues?*, by Randy Schnepf.

Figure 1. Corn Belt



USDA's Current Crop Outlook for Corn and Soybeans

On August 12, 2008, USDA released the first survey-based forecast of corn and soybean production for 2008.[2] According to USDA's forecast, U.S. farmers will produce the second largest corn crop on record — 12.3 billion bushels — up about 5% from the previous month's forecast, but down over 6% from the 2007 record crop. USDA's soybean production forecast of nearly 3 billion bushels is unchanged from the July forecast, but up 15% from 2007.

These production forecasts reflect three factors. First, flood-related acreage losses appear to be substantially less than initially projected. Second, nearly ideal growing conditions that have persisted across the Corn Belt since late June have contributed to sharp increases in USDA's yield outlook for corn, thus, offsetting flood-related area losses. Third, despite a 17.6% increase in planted acreage in 2008, soybean production is flat due to a diminished yield outlook — largely due to the lateness of the crop's planting and development, as well as dry conditions in the Delta, the Southeast, and the Northern Plains.

USDA's August crop production forecast appear to have calmed much of the market concern regarding crop losses due to flooding. However, a large portion of the 2008 corn and soybean crops were planted late and, as of early August, remain substantially behind historical development rates.[3] As of August 11, USDA estimates that 30% of corn had reached the dough stage of development compared with the 5-year average of 50%, while only 6% had dented compared with an average of 16% the past five years. Similarly, 60% of soybean plants had set pods compared with the 5-year average of 75%. As a result, market analysts suggest that weather problems could still emerge — such as an early freeze — that could lower yield and

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[2] *Crop Production*, National Agricultural Statistics Service (NASS), USDA, August 12, 2008; [http://www.nass.usda.gov/Publications/].

[3] *Crop Progress*, NASS, USDA, August 11, 2008.

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production prospects, especially in the more northerly regions where crop development remains behind normal.

USDA Re-Surveys Flooded Areas. USDA's August crop production forecasts reflect growing conditions as of August 1, and incorporate survey data from the flood-affected regions. The yield estimates are based on objective field surveys while the planted and harvested acreage estimates are usually drawn from the June *Acreage* report.[4] However, most of the survey data for the *Acreage* report was collected during the first two weeks of June prior to the worst flooding. In response to the changed circumstances, USDA conducted an extensive re-interview of producers' harvesting intentions in mid-July, in the flood-affected areas of Illinois, Indiana, Iowa, Minnesota, Missouri, and Wisconsin, to supplement the earlier survey data in deriving estimates of abandoned and harvested acres.[5] USDA stated that under a return to normal weather conditions, by mid-July most flooded fields would be dry and affected farmers would be better able to assess their options. Data obtained from the mid-July re-interviews were incorporated into USDA's August 12, 2008, *Crop Production* and *WASDE* reports.

Outlook for Corn Harvested Acres. USDA estimates 2008 U.S. planted and harvested corn area of 86.977 and 79.290 million acres, respectively.[6] This compares with the June *Acreage* estimates of 87.327 million and 78.940 million acres (**Table 1**). Thus, planted corn acreage has been revised downward 350,000 acres, while harvested acreage was raised by 350,000 acres. Planted area losses occurred primarily in the flood-affected states. Harvested area gains occurred primarily in states outside of the flood regions and is reflected in below-average abandonment rates. High market prices appear to be encouraging farmers to make every effort to harvest more marginal areas that are traditionally abandoned or grazed off by livestock.

Outlook for Soybean Harvested Acres. USDA estimates 2008 U.S. planted and harvested soybean area of 74.783 million and 73.341 million acres, respectively.[7] This compares with the June *Acreage* estimates of 74.533 and 72.121 million acres (**Table 2**). Thus, planted soybean acreage has been revised upward 250,000 acres, while harvested acreage was raised by 1,220,000 acres. In contrast to corn, soybean harvested area gains occurred primarily in the flood-affected states.

Outlook for Corn Yield. USDA's August estimate of 2008 corn yields was 155 bushels per acre. If realized, this would be the second largest on record behind the 160.4 bushels per acre achieved in 2004. Clearly, excellent weather since late June has boosted the yield outlook. Just a month earlier, in July, USDA had forecast national average corn yields at 148.4 bu./ac. due to the combined effects of slow

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[4] *Acreage*, NASS, USDA, June 30, 2008.

[5] "USDA Report Assesses 2008 Corn and Soybean Acreage," USDA News Release, June 30, 2008; at [http://www.nass.usda.gov/Newsroom/2008/06_30_2008.asp].

[6] *Crop Production*, NASS, USDA, August 12, 2008.

[7] Ibid.

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planting progress, unusually slow plant emergence, and the flooding.[8] Final yields may still vary based on growing conditions through the remainder of the growing season. USDA updates its crop production and market supply and demand estimates monthly.[9]

Outlook for Soybean Yield. USDA's August estimate of 2008 soybean yields was 40.5 bushels per acre. If realized, this would be down nearly 2% from last year's 41.2 and the lowest since 2003. The soybean crop's late development and dryness throughout much of the Southeast, Delta, and Northern Plains appears to be taking its toll. Just a month earlier, in July, USDA had forecast national average soybean yields at 41.6 bu./ac. based on 1989-2007 regional trend analysis adjusted for late planting and emergence.[10] As with corn, final soybean yields may still vary based on growing conditions through the remainder of the growing season.

Estimating Crop Losses for 2008

Flood-related crop damage assessments generally are made by county and state officials in the affected regions. However, a rough approximation of flood-damaged acres can be obtained by comparing the implied state-level abandonment rates from USDA's August forecasts with the recent eight-year average abandonment rates. If one attributes any change from the 8-year average entirely to the flood, then the data suggest that about 889,000 acres planted to corn and intended for harvest were lost in Iowa (453,000), Illinois (236,000), Indiana (102,000), and Missouri (99,000) — see **Table 1**. This "lost" area estimate represents about 1% of the 87.0 million acres planted to corn in 2008. However, projected below-average abandonment rates throughout the remainder of the Corn Belt, particularly in Nebraska, Kansas, South Dakota, Ohio, and in lower-yielding non-Corn Belt states more than offset the lost acres. Applying USDA August yield forecasts to the area-loss calculations suggests that the four major flood-affected states of Iowa (77.5 million bushels), Illinois (40.6), Indiana (15.8), and Missouri (14.4), cumulatively account for 148.2 million bushels of "potentially" lost production.[11] This "lost" production estimate represents 1.2% of the 12.3 billion bushel crop estimate announced by USDA.

Applying the same abandonment rate methodology to soybeans suggests that projected area loss related to bad weather and flooding amounts to nearly 400,000 acres in the Corn Belt, partially offset by 184,000 acres of below-normal abandonment in non-Corn Belt states (**Table 2**). This "lost" area estimate represents about 0.2% of the 74.8 million acres planted to soybeans in 2008. Applying USDA

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[8] *World Agricultural Supply and Demand Estimates (WASDE),* World Agricultural Outlook Board (WAOB), USDA, July 11, 2008.

[9] USDA *Crop Production* reports are available at [http://www.nass.usda.gov/]; *World Agricultural Supply and Demand Estimates (WASDE),* at [http://www.usda.gov/oce/commodity/wasde/index.htm].

[10] *World Agricultural Supply and Demand Estimates (WASDE),* World Agricultural Outlook Board (WAOB), USDA, July 11, 2008.

[11] Note that these calculations by CRS are purely hypothetical. They are available upon request.

August yield forecasts to the area-loss calculations suggests that for soybeans there are six major flood-affected states that cumulatively account for 63 million bushels of "potentially" lost soybean production: Iowa (19.1 million bushels), Illinois (19.0), Indiana (12.5), Missouri (8.8) Wisconsin (2.4), and Minnesota (1.3).[12] This "lost" production estimate represents 2.1% of the estimated 3 billion bushel crop.

Unusual Spring Weather Across the U.S. Corn Belt

Wet, Cool Weather Persists Since Late 2007. The 2008 Midwest weather-related crop problems — the late planting start, slow crop development, and severe June flooding — were precipitated in 2007 by above-normal rainfall and a cold, wet winter that saturated soils. In Iowa, 2007 was the fourth-wettest year on record.[13] The unusually cool, wet conditions persisted through spring 2008. Again citing Iowa, which was subsequently hit the hardest by June floods (**Figure 2**), as an example, the first six months of 2008 represented the wettest January-to-June period on record. Cool weather inhibited evaporation rates, thus slowing the soil's rate of drying. As a result, many regions of the Corn Belt were saturated and vulnerable to erosion, ponding (standing water), and flooding when heavy storms in late May and early June dropped additional rainfall.

Planting Date Is Critical for Optimal Yields. Traditionally, farmers plant corn as early as possible because early planting provides the greatest potential to achieve maximum yields.[14] Corn is usually planted ahead of soybeans. Early corn planting is discouraged by wet or cold soils (below 50° F). As a result, more southerly regions tend to have earlier optimal planting dates. In Iowa the optimal corn planting dates are between April 20 and May 5. Yields begin to drop off as the planting date is delayed. A significant yield reduction occurs when the planting date is extended to late May or June. Similarly, the optimal soybean planting date in Iowa is the last week of April for the southern two-thirds of the state, and the first week of May for the northern third. Optimal planting dates in more northerly latitudes, such as in Minnesota or Wisconsin, occur slightly later and have a smaller window for delayed planting.

This year's excessive rainfall coupled with unusually persistent cold ground temperatures delayed both corn plantings and subsequent plant emergence across much of the prime growing region of the Corn Belt. By May 11, only 51% of intended corn area in the Corn Belt had been planted compared with the previous 5-year average (2002-07) of 77%.[15] Similarly, only 11% of intended soybean area had been planted compared with the 5-year average of 29%. The late start pushed key

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[12] Note that these calculations by CRS are purely hypothetical

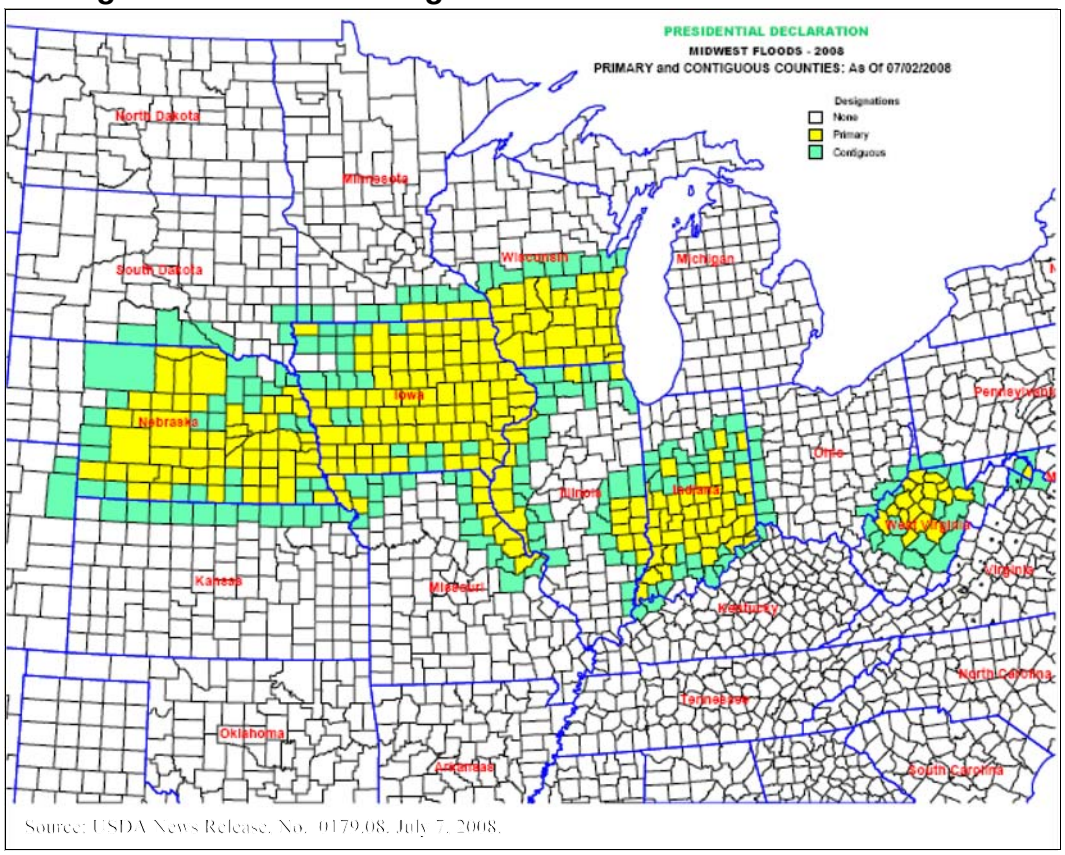
[13] "Memorandum for Reporters and Editors," Iowa Dept. of Agriculture and Land Stewardship, July 1, 2008. Note that Iowa's weather records date back to the early 1870s.

[14] See *Has the best time to plant corn changed?* and *Early planting of soybean is very important*, Integrated Crop Management (ICM), Iowa State University (ISU) Extension, at [http://www.ipm.iastate.edu/ipm/icm/2006/3-13/corntime.html] and [http://www.ipm.iastate.edu/ipm/icm/2007/4-2/earlyplant.html].

[15] *Crop Progress*, NASS, USDA, May 12, 2008.

plant development stages of the corn growth cycle into the hotter weeks of July and August, when it is susceptible to heat stress and dryness, and later into the fall, when the possibility of an early freeze can prematurely end ear or pod filling. In addition, a late start to corn generally implies a late start to soybean production (whose planting generally follows corn), with similar growth concerns.

Figure 2. Counties Designated as Presidential Disaster Areas



Source: USDA News Release, No. 0179.08, July 7, 2008.

By May 27, 88% of intended corn acres had been planted versus the 5-year average of 94%, and 52% of intended soybean acres versus 5-year average of 67%. However, equally if not more critical were the on-going delays in plant emergence for both crops. Only 52% of planted corn had emerged compared with a 5-year average of 76% emergence, and only 12% of planted soybeans had emerged versus the 5-year average of 34%. As a result, crop yield concerns were already developing by late May.

June Flooding Ravages Key Growing Areas. With soils already saturated and yield concerns mounting, widespread, heavy rains across the Corn Belt in late May and early June washed out substantial areas recently planted to crops. In addition, they produced severe erosion and gullying, and left saturated soils and standing water in many fields. But most damagingly, the rains triggered widespread flooding across the heart of the Corn Belt. Thousands of acres of prime cropland in Iowa, Nebraska, Illinois, Indiana, Wisconsin, and Missouri were flooded by rivers that swelled their banks and caused levees to break as the storm surge moved through the Mississippi River watershed. Indiana's agriculture director said that the June

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floods had likely caused the worst agriculture disaster in the state's history, damaging nearly 10% of corn and soybean crops.[16]

The flooding likely led to the abandonment of substantial planted crop acreage, and to yield losses in those crops that survived the flooding but were subject to extended periods of standing water or waterlogged soil.[17] A further concern of saturated soils persisting during the early stages of plant development (particularly for late-planted crops) is that corn plants are more likely to develop shallow root systems, which, in turn, increase their vulnerability to heat and dryness later in the growing cycle.

Initial attempts to ascertain the extent of the crop damage were difficult because the eventual yield and production outcomes for the affected areas depends on how quickly flood waters recede and whether plant growth resumes or new seed is planted. For many farmers, by late June the replanting window for corn had already closed or was approaching faster than the soils were drying. In many cases, the indemnities offered under federally subsidized crop insurance represented greater potential remuneration than incurring the costs of replanting subject to a substantial reduction in yield coverage (due to the late planting date). Replanting to soybeans was an option for some, but many farmers who initially planted corn had already applied a round of herbicide, which would likely damage or kill the soybean seed.

Flood-Related Crop Production and Marketing Issues

Transportation Infrastructure Damage. While spring flooding in the upper Midwest had caused problems for barge traffic earlier in the year, the extreme rain in June stopped navigation on a nearly 300-mile stretch of the Mississippi River.[18] Major parts of the rail network in the Midwest were damaged, and several major highways in Iowa were temporarily closed. The transportation infrastructure damage resulted in significant delays as grain shipments were rerouted and repairs were underway. By July 6, the Mississippi River had re-opened to commercial traffic, but substantial delays persisted. As a result, many shipments of corn and soybeans were still being rerouted to Texas Gulf ports.

Agricultural Processing and Storage Facilities Disruptions. The flood waters partially submerged many grain elevators and storage facilities, as well as two ethanol plants in Iowa. However, the main damage to agricultural marketing and processing facilities located in the flood-affected region was economic and

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[16] As cited in "Crop Development Issues, Food Prices and Ethanol Concerns," posted by Keith Good, *FarmPolicy.com*, June 20, 2008.

[17] See *Corn survival in flooded or saturated fields*, and *Planting and replanting scenarios*, ICM, ISU Extension, available at [http://www.ipm.iastate.edu/ipm/icm/2007/4-30/flooded.html] and [http://www.ipm.iastate.edu/ipm/icm/2007/6-4/replant.html].

[18] "Midwest Flooding Affects River, Rail, and Road Traffic," *Grain Transportation Report*, Agricultural Marketing Service, USDA, June 26, 2008. For more information about barge transportation on the Mississippi River, see CRS Report RL32470, *Upper Mississippi - Illinois Waterway Navigation Expansion: An Agricultural Transportation and Environmental Context*, coordinated by Randy Schnepf.

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primarily attributable to delays in the arrival of primary commodity shipments due to the transportation infrastructure damage. Many grain elevators, ethanol plants, soybean crushing plants, and other agricultural processing facilities were temporarily closed or operating at reduced capacity in the weeks immediately following the floods. The Iowa Renewable Fuels Association initially estimated that more than 300 million gallons (annualized) of ethanol production capacity were off line on June 13.[19] In addition, several grain elevators and other types of storage facilities located within the flood zone were damaged. The number of grain elevators damaged and the potential volume of corn and soybean stocks lost is not yet available but is being evaluated by USDA.

Livestock Losses and Disposal Issues. The suddenness of the floods across eastern Iowa resulted in the deaths of possibly thousands of head of livestock, particularly hogs. However, preliminary assessments for the state of Iowa suggest that the actual livestock mortality tally may be substantially lower than initially feared.[20] It appears that most producers had sufficient advance warning of potential flood conditions to move their animals to a safer location ahead of the floods.

The Federal Response

Designated Disaster Areas. The President is authorized — by the Robert T. Stafford Disaster Relief and Emergency Assistance Act (the Stafford Act) — to issue major disaster or emergency declarations in response to catastrophes that overwhelm state and local governments.[21] Iowa, with 85 of its 99 counties declared eligible for either individual or public a federal disaster area, appeared to be the hardest hit by the storms and flooding.[22] However, counties in Indiana (44 counties), Illinois (24), Minnesota (4), Wisconsin (30), Nebraska (53), as well as West Virginia (18), were also identified as primary disaster areas related to the spring floods (**Figure 2**).[23]

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[19] "Grain storage facilities take hit from flooding," by Tim Hoskins, *Minnesota Farm Guide*, July 3, 2008.

[20] Conversation with staff at the Iowa Department of Agriculture and Land Stewardship. Preliminary estimates suggest about 3,500 hogs and no cattle deaths are directly attributable to the June floods.

[21] For more information see CRS Report RL33053, *Federal Stafford Act Disaster Assistance: Presidential Declarations, Eligible Activities, and Funding*, by Keith Bea; CRS Report RL31734, *Federal Disaster Recovery Programs: Brief Summaries*, by Mary Jordan; and CRS Report RL34146, *FEMA's Disaster Declaration Process: A Primer*, by Francis X. McCarthy.

[22] The initial federal disaster declaration was made on May 27, 2008. The final county count for Iowa is available as "Disaster Declaration as of 08/12/2008," FEMA-1763-DR, Iowa, at [http://www.gismaps.fema.gov/2008graphics/dr1763/dec_1763.pdf].

[23] "2008 Federal Disaster Declarations," Federal Emergency Management Agency (FEMA), available at [http://www.fema.gov/news/disasters.fema]. For more information on federal flood response see, "Midwest Flood Response and Recovery," at [http://www.usa.gov/flooding.shtml].

A Presidential declaration results in the distribution of a wide range of federal aid to individuals and families, certain nonprofit organizations, and public agencies in the designated areas. Congress appropriates money to the Disaster Relief Fund (DRF) for disaster assistance authorized by the Stafford Act, which is administered by the Federal Emergency Management Agency (FEMA) within the Department of Homeland Security (DHS). Appropriations to the DRF remain available until expended. However, DRF funds are not available to cover agricultural production losses. Instead, USDA offers several permanently authorized programs to help farmers recover financially from a natural disaster, including federal crop insurance, the non-insured assistance program (NAP), and emergency disaster loans.[24]

Agricultural Assistance. USDA is actively engaged in committing resources to the flood response. In this regard, USDA has undertaken a broad range of activities in the flood-affected areas including rescue and clean up, food assistance, housing, community assistance, business assistance, and farmer and rancher assistance.[25]

Congress has appropriated nearly $480 million in emergency USDA funding specifically targeted to 2008 Midwest flood response activities as part of the FY2008 Supplemental Appropriations Act (P.L. 110-252). This funding is available for eligible farmers to defray the cost of clean-up and rehabilitation of farmland and watersheds following a disaster.[26] Of the total amount available, $89.4 million is for the Emergency Conservation Program, which assists farmers in the cleanup and restoration of farmland damaged by a natural disaster, and $390.5 million is for the Emergency Watershed Protection Program, which is designed to relieve imminent hazards created by natural disasters and to alleviate future flood risk.

The 2008 farm bill (P.L. 110-246) included provisions that authorized and funded a new four-year supplemental revenue crop disaster program (for crop years 2008-2011).[27] However, without advance payments, no emergency supplemental disaster assistance for 2008 crop and livestock losses will be available before October 2009. This is because — according to the farm bill disaster program's design — the payment formula used to determine the level of payments for 2008 crop and revenue losses is based on national average market prices which will not be known until Fall 2009. USDA claims that it does not have the authority to make advance payments. Some policymakers want to amend the farm bill to require USDA to make advance payments, while several farm groups contend that USDA already has the flexibility and should exercise its authority.

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[24] For more information, see CRS Report RS21212, *Agricultural Disaster Assistance*, by Ralph M. Chite.

[25] For a list of USDA flood-related activities, see "Midwest Flood Response USDA Actions," Release No. 0163.08, updated on July 1, 2008, at [http://www.usda.gov/safety].

[26] For more information, see CRS Report RS21212, *Agricultural Disaster Assistance*, by Ralph M. Chite.

[27] For more information, see CRS Report RL34207, *Crop Insurance and Disaster Assistance in the 2008 Farm Bill*, by Ralph M. Chite.

USDA has also been under considerable pressure from Members of Congress and groups representing the livestock, biofuels, and agricultural processing sectors to do more to bring high commodity prices down — corn and soybean products are important ingredients for those industries. Among other things, these groups have called for the Secretary of Agriculture to announce a penalty-free release of acreage presently under long-term contract in the Conservation Reserve Program (CRP)[28] and for the EPA Administrator to announce a waiver of the Renewable Fuels Standard which mandates an increasing minimum use of biofuels in the national fuel supply.[29]

On April 25, 2008, Texas Governor Rick Perry, in a letter to Stephen Johnson, Administrator of the Environmental Protection Agency (EPA) — the federal agency responsible for administering the RFS — to request that EPA waive 50% of the RFS' ethanol requirements to alleviate their impact on corn prices.[30] However, Governor Perry's request was denied by the EPA.[31]

On May 27, USDA announced that 24 million acres of CRP land could be used in 2008 for a critical feed use (CFU) program of managed haying and grazing following primary bird nesting season.[32] However, a U.S. District Court issued a permanent injunction on July 24 against the CFU except for those who applied before a temporary restraining order issued on July 8.[33]

Flood-related crop production concerns have added to this pressure and have perhaps contributed to the USDA decision on July 7, 2008, to announce that permission is granted in both presidential disaster and contiguous counties to use CRP land for grazing only.[34]

Potential Market Implications Due to Flood Losses

As mentioned earlier, the United States and world markets have experienced tight supplies and record high prices during the first half of 2008.[35] Most long-term

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[28] For more information, see CRS Report RS21613, *Conservation Reserve Program: Status and Current Issues*, by Tadlock Cowan.

[29] For more information, see CRS Report RL34265, *Selected Issues Related to an Expansion of the Renewable Fuel Standard (RFS)*, by Brent D. Yacobucci and Tom Capehart.

[30] "Letter to EPA Administrator Stephen Johnson," by Texas Governor Perry, April 25, 2008, at [http://www.governor.state.tx.us/].

[31] "EPA Keeps Biofuels Levels in Place after Considering Texas' Request," EPA News Release, August 7, 2008.

[32] "USDA Announces Crp Permitted Use for Livestock Feed Needs," USDA News Release No. 0137.08, May 27, 2008.

[33] For more information, see CRS Report RS21613, *Conservation Reserve Program: Status and Current Issues*, by Tadlock Cowan.

[34] "USDA Releases CRP Land in Flood Regions for Grazing," Release No. 0179.08, July 7, 2008.

[35] For more information, see CRS Report RL34474, *High Agricultural Commodity Prices:*
(continued...)

forecasts project prices for feed grains and oilseeds — as well as those crops that compete for area with feed grains and oilseeds — to remain at significantly higher levels than experienced during the recent 1998-2006 period.[36] The main factors behind higher long-term prices are projections for a steady rise in global population, accompanied by steady income growth in the world's developing economies, which combine to sustain growth in demand for livestock products and the feedstuffs (e.g., coarse grains and protein meals) needed to produce those products. In addition, the outlook for increased demand for agricultural feedstocks to meet large increases in government biofuel-usage policies, particularly in the United States and the European Union (EU), suggest that demand will increase strongly over the coming decade for corn (the primary feedstock for U.S. ethanol production), and vegetable oils (the primary feedstock for biodiesel production in the United States and the EU).

These long-run forecasts assume normal crop growing conditions and successful harvests. As a result, any deviation from normal growing conditions can be expected to have negative market repercussions and drive prices higher. The potential weather- and flood-related production losses to this year's U.S. corn and soybean crops were unwelcome news to the market and, likely to contribute to higher commodity prices in June. Because the United States plays a dominant role in global corn and soybean markets, U.S. price changes transmit directly to the international marketplace.

In summary, good growing conditions during July and early August of 2008 appear to have moderated initial concerns over potential flood-related crop losses. However, a large portion of the 2008 corn and soybean crops were planted late and, as of early August, remain substantially behind historical development rates. As a result, market analysts suggest that weather problems such as an early freeze could still emerge to lower yield and production prospects. Such concerns are likely contribute to volatile commodity prices, thereby, maintaining pressure on policymakers over concerns about consumer food price inflation, international food aid availability, and the soundness of policy that dedicates commercial agricultural crops to biofuels production, particularly corn used for ethanol.

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[35] (...continued)
What Are the Issues?, by Randy Schnepf.

[36] For examples of long-term agricultural forecasts, see *U.S. Baseline Briefing Book*, Food and Agricultural Policy Research Institute, FAPRI-MU Report #03-08, March 2008, at [http://www.fapri.missouri.edu/outreach/publications/2008/FAPRI_MU_Report_03_08.pdf]. See also "Agricultural Baseline Projections," Economic Research Service, USDA, at [http://www.ers.usda.gov/Briefing/Baseline/].

Table 1. Estimated Corn Acres Lost Due to June 2008 Floods Based on Predicted Abandonment Rates

State	March[a]	June[b]		August 12, 2008[c]		Abandonment			August Implied Area Loss[d]
	Planted	Planted	Harv-ested	Planted	Harv-ested	June 2008	Aug. 2008	Ave: 2000-07	
	---------- 1,000 acres ----------					----- Percent -----			1,000 acres
Iowa	13,200	13,700	12,280	13,700	12,900	6.6%	5.8%	2.5%	**(453)**
Illinois	12,600	12,300	11,500	12,200	11,800	6.5%	3.3%	1.3%	**(236)**
Nebraska	8,800	9,000	8,750	9,000	8,750	2.8%	2.8%	5.0%	198
Minnesota	7,600	7,800	7,250	7,800	7,250	7.1%	7.1%	7.0%	**(0)**
Indiana	5,700	5,700	5,350	5,600	5,350	6.1%	4.5%	2.6%	**(102)**
Ohio	4,650	4,650	4,200	4,650	4,200	9.7%	9.7%	15.3%	260
South Dakota	3,900	4,100	3,900	4,100	3,900	4.9%	4.9%	10.0%	209
Kansas	3,650	3,800	3,100	3,750	2,950	18.4%	21.3%	22.9%	57
Wisconsin	3,350	3,350	3,150	3,350	3,150	6.0%	6.0%	6.8%	28
Missouri	3,100	2,900	2,500	2,800	2,600	13.8%	7.1%	3.6%	**(99)**
Michigan	2,250	2,400	2,150	2,400	2,150	10.4%	10.4%	18.1%	185
Kentucky	2,350	2,350	2,080	2,350	2,080	11.5%	11.5%	11.4%	**(1)**
North Dakota	1,230	1,230	1,150	1,230	1,150	6.5%	6.5%	7.0%	6
Corn Belt	**72,380**	**73,280**	**67,880**	**72,930**	**68,230**	**6.6%**	**5.7%**	**3.4%**	**(45)**
Non-Corn Belt	13,634	14,047	11,060	14,047	11,060	21.3%	21.3%	25.3%	**569**
United States	**86,014**	**87,327**	**78,940**	**86,977**	**13,700**	**9.6%**	**8.8%**	**9.3%**	**369**

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Source: NASS, USDA.

a. *Prospective Plantings*, NASS, USDA, March 31, 2008.
b. *Acreage*, NASS, USDA, June 30.
c. *Crop Production*, NASS, USDA, August 12, 2008.
d. Calculations are by CRS based on departure from average abandonment rates.

Table 2. Estimated Soybean Acres Lost Due to June 2008 Floods Based on Predicted Abandonment Rates

State	March[a]	June[b]		August 12, 2008[c]		Abandonment			August Implied Area Loss[d]
	Planted	Planted	Harv-ested	Planted	Harv-ested	June 2008	Aug. 2008	Ave: 2000-07	
	---------- 1,000 acres ----------					----- Percent -----			1,000 acres
Iowa	9,800	9,400	8,950	9,500	9,300	2.1%	4.8%	0.5%	**(156)**
Illinois	8,800	9,100	8,600	9,100	8,950	1.6%	5.5%	0.5%	**(102)**
Minnesota	7,100	7,100	6,950	7,100	6,950	2.1%	2.1%	1.7%	**(32)**
Indiana	5,500	5,500	5,200	5,600	5,550	0.9%	5.5%	0.5%	**(21)**
Missouri	5,200	5,300	5,000	5,300	5,100	3.8%	5.7%	1.2%	**(137)**
Nebraska	5,000	4,750	4,700	4,750	4,700	1.1%	1.1%	1.2%	8
Ohio	4,500	4,600	4,580	4,600	4,580	0.4%	0.4%	0.5%	3
South Dakota	4,100	4,100	4,040	4,100	4,040	1.5%	1.5%	1.4%	**(1)**
North Dakota	3,550	3,400	3,340	3,400	3,340	1.8%	1.8%	2.3%	20
Kansas	3,200	3,200	3,100	3,200	3,100	3.1%	3.1%	5.1%	64
Michigan	2,000	1,900	1,890	1,900	1,890	0.5%	0.5%	0.7%	3
Wisconsin	1,650	1,650	1,560	1,700	1,630	4.1%	5.5%	2.1%	**(35)**
Kentucky	1,330	1,330	1,320	1,330	1,320	0.8%	0.8%	1.2%	6
Corn Belt	**61,730**	**61,330**	**59,230**	**61,580**	**60,450**	**1.8%**	**3.4%**	**1.2%**	**(411)**
Non-Corn Belt	13,063	13,203	12,891	13,203	12,891	2.4%	2.4%	3.8%	184
United States	**74,793**	**74,533**	**72,121**	**74,783**	**73,341**	**1.9%**	**3.2%**	**1.6%**	**(271)**

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Source: NASS, USDA.

a. *Prospective Plantings*, NASS, USDA, March 31, 2008.
b. *Acreage*, NASS, USDA, June 30.
c. *Crop Production*, NASS, USDA, August 12, 2008.
d. Calculations are by CRS based on departure from average abandonment rates.

Table 3. Corn Area, Yield, and Production, U.S. and Corn Belt, Averages for 2000-2007

State	Major Crops[a]	Corn						
		Acreage						
	Total Planted Area	Planted	Harv-ested	Aband-onment rate	Yield	Prod-uction	Ave. Farm Price	Value of Production
	1,000 acres	1,000 acres		%	bu./ac.	Million bu.	$/bu.	$ Million
Iowa	24,658	12,600	12,281	2.5	162.6	2,002	2.40	4,906
Illinois	23,337	11,606	11,450	1.3	157.9	1,812	2.51	4,656
Nebraska	18,927	8,419	8,000	5.0	147.4	1,182	2.44	2,942
Minnesota	19,764	7,363	6,844	7.0	152.3	1,043	2.33	2,461
Indiana	12,340	5,763	5,610	2.6	150.4	845	2.50	2,138
Ohio	10,201	3,413	3,180	6.8	142.5	454	2.49	1,142
South Dakota	17,103	4,444	3,765	15.3	111.8	425	2.27	975
Kansas	23,045	3,381	3,044	10.0	129.1	395	2.54	1,016
Wisconsin	8,039	3,675	2,835	22.9	135.6	385	2.43	949
Missouri	13,856	2,931	2,825	3.6	130.3	369	2.47	921
Michigan	6,525	2,275	2,015	11.4	127.8	257	2.44	638
Kentucky	5,575	1,236	1,150	7.0	134.0	154	2.62	406
North Dakota	21,578	1,511	1,238	18.1	114.3	142	2.28	355
Corn Belt	204,946	68,616	64,236	6.4	147.0	9,467	2.44	23,506
Non-Corn Belt	117,844	12,307	9,191	33.6	126.1	1,159	2.75	3,182
United States	322,790	80,923	73,428	10.2	144.4	10,625	2.46	26,688

Source: National Agricultural Statistics Service, USDA, Online Agricultural Statistics Database, July 9, 2008.
Note: States are ranked by average production for the six-year period.
a. USDA defines major crops as barley, corn, cotton, millet, oats, peanuts, rapeseed, sunflower, rice, rye, sorghum, and wheat.

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Table 4. Soybean Area, Yield, and Production, U.S. and Corn Belt, Averages for 2000-2007

State	Major Crops[a]	Soybeans						
		Acreage						
	Total Planted Area	Planted	Harv-ested	Aband-onment rate	Yield	Prod-uction	Price	Value of Production
	1,000 acres	1,000 acres		%	bu./ac.	Million bu.	$/bu.	$ Million
Iowa	24,658	10,213	10,165	1.4	46.4	470	6.36	2,937
Illinois	23,337	9,981	9,929	0.3	44.6	442	6.45	2,777
Minnesota	19,764	7,138	7,019	0.8	39.6	277	6.15	1,681
Indiana	12,340	5,463	5,434	0.9	46.3	252	6.34	1,558
Nebraska	18,927	4,650	4,593	1.5	44.9	206	6.02	1,234
Ohio	10,201	4,481	4,459	1.3	42.4	189	6.24	1,181
Missouri	13,856	4,981	4,923	1.1	36.7	181	6.27	1,119
South Dakota	17,103	4,075	4,016	0.8	33.8	135	5.94	791
North Dakota	21,578	2,940	2,871	0.8	31.6	90	5.89	545
Kansas	23,045	2,825	2,680	0.5	30.1	82	6.21	505
Michigan	6,525	2,000	1,983	5.9	36.6	72	6.19	445
Wisconsin	8,039	1,578	1,545	23.0	38.8	60	6.04	355
Kentucky	5,575	1,253	1,238	1.1	39.1	49	6.43	303
Corn Belt	204,946	61,576	60,857	1.2	41.2	2,503	6.24	15,403
Non-Corn Belt	117,844	11,185	10,767	3.9	32.4	349	6.16	2,153
United States	322,790	72,763	71,623	1.6	39.8	2,852	6.25	17,584

Source: National Agricultural Statistics Service, USDA, Online Agricultural Statistics Database, July 9, 2008.
Note: States are ranked by average production for the six-year period.
a. USDA defines major crops as barley, corn, cotton, millet, oats, peanuts, rapeseed, sunflower, rice, rye, sorghum, and wheat.

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