



QUARTERLY U.S. RURAL ECONOMIC REVIEW, Q3-2012

Sputtering Global Economy and Drought-Impaired Agricultural Markets

This quarterly update is prepared by the Knowledge Exchange Division and covers the key industries served by CoBank, including the agricultural markets and the rural infrastructure industries.

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Key Points:

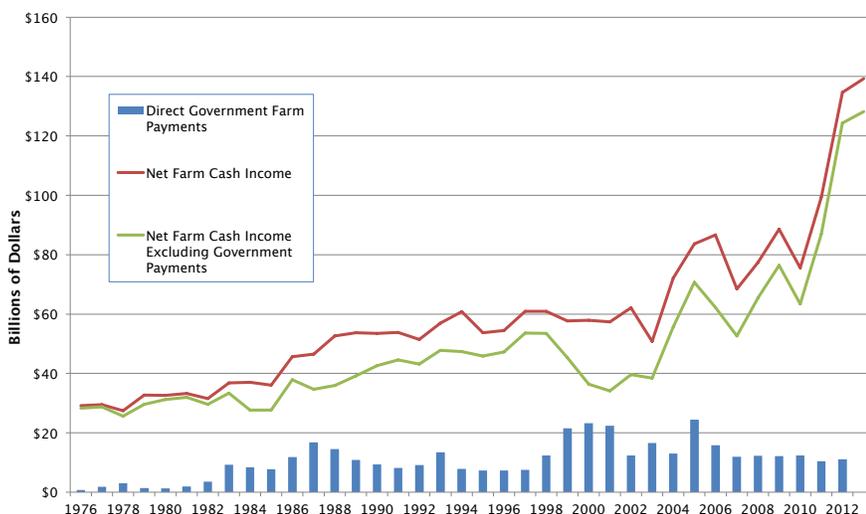
- *Global economic growth will remain subdued during the next year as the advanced economies struggle with sovereign debt and growth issues while China and other emerging markets attempt to spur internal growth to compensate for reduced export flows.*
- *The U.S. economy will remain on a 1.5-2.0 percent growth path for the foreseeable future as consumers struggle with vexing uncertainties in the job market and the future of the U.S. economy.*
- *The 2012 drought will sharply reduce the U.S. corn and soybean crops, but estimated crop yields are highly variable across the country and within regions.*
- *Many grain coops will experience a decline in revenue in 2012/13 due to the market price inversion and light volumes. Key revenue sources of drying, storing, and carrying grain could be impacted as much as 10-30 percent.*
- *Coops are also holding sizable inventories of fertilizer for fall applications. But crop producers will purchase and apply fertilizer this fall only if ground conditions have improved enough from the summer months to warrant doing so.*
- *Within the animal protein and dairy complexes, supply rationing is an interactive process between output adjustments and consumers' ability and willingness to pay higher prices.*
- *The near-term outlook for agricultural markets depends critically on next year's South American crops. If they fall far short of the markets' towering expectations, the grains and oilseeds markets would end up tighter than a drum, with prices soaring to new record-highs.*
- *The current glut of natural gas will end soon. Gas companies have already sharply curtailed natural gas drilling in response to present soft market conditions.*
- *Those rural communications companies that have embraced the broadband world and adjusted their business strategies accordingly are thriving. Those that have not, are languishing.*

Preview

The weakening global economy and Europe’s lack of progress in containing the rise in sovereign debt have spurred central banks into providing additional monetary stimulus. Central banks in Europe, Japan and the U.S. are using their balance sheets to purchase additional debt and inject liquidity into the marketplace. The European Union as a whole remains mired in recession, and the U.S. economy appears to be downshifting as it approaches 2013. China, the main growth engine of the world economy, is struggling to maintain its forward momentum despite a sharp drop in exports, particularly to Europe. Elections in the advanced economies and a top leadership change in China are further complicating economic policymaking.

The U.S. agricultural sector remains robust overall, but drought-impaired supplies of feed grains and soybeans are boosting prices and imposing debilitating cost pressures on the protein and dairy complexes. Net cash farm income, which increased 35 percent last year to a record level, is poised to reach a new record high in 2012 with gains in grain and oilseed income the major driving force. (See Exhibit 1.)

Exhibit 1: Net Farm Cash Income, With and Without Direct Government Payments



Sources: USDA, ERS, and CoBank

Macroeconomic Outlook

During the next 6-12 months, political events and challenges are likely to overshadow any significant economic policy breakthroughs. Elections continue throughout Europe and the U.S., and a leadership transition is under way in China. Political unrest and upheaval in the Middle East and Russia are further complicating the needed global policy reforms. While central banks have attempted to boost liquidity and moderate interest rates on sovereign debt, fundamental fiscal discipline and economic reforms remain lacking.

The European Central Bank has made an open-ended commitment to purchase bonds from those countries that have had to contend with crippling high interest rates. However, to get this assistance, countries must formally request it and agree to structural reforms to improve their fiscal positions and enhance their global competitiveness. These reforms will be monitored carefully and failure to meet commitments will result in the withdrawal of assistance. Spain appears ready to submit such a request whereas Greece and Italy are resisting the fiscal austerity that is required to sustain their current lifelines of assistance.

Analysts are worried about the resilience of the Chinese economy. For years, exports served as their foremost growth engine, but the European recession and subpar U.S. growth appear to have derailed this engine. Some skeptics doubt whether China will be able to prevent growth from slipping below 8 percent. Stimulating domestic consumption will be their alternative growth strategy; and a further decline in their central bank interest rates seems imminent, perhaps in conjunction with the leadership change scheduled for October.

The U.S. economy will remain on a 1.5-2.0 percent growth path for the foreseeable future as consumers struggle with vexing uncertainties

in the job market and the future of the U.S. economy. Consumers have made significant reductions in their debt levels; and home values have increased in each of the past five months, perhaps signaling that the housing and mortgage markets have finally turned the corner and begun to recover. However, job growth remains exceedingly slow for this point in an economic recovery, and consumers are not optimistic about their job prospects. Fiscal drag will continue to dampen U.S. economic growth throughout 2013 and beyond. Government spending at the federal, state and local levels will either decline or grow very slowly over the next few years. Taxes paid are likely to increase. Ending this economic malaise will require difficult decisions as well as compromises by political and policy leaders. It is doubtful whether the outcome of the November elections will provide clarity to economic policy directions.

As the yearend approaches, the U.S. Federal Government and the U.S. economy are teetering on the brink of the so-called Fiscal Cliff. Two separate events are scheduled to occur at the end of 2012 or the beginning of 2013. The first is the expiration of a number of tax cuts, adding up to almost \$400 billion. The second consists of cuts in federal spending for domestic and military programs, including emergency unemployment benefits and totaling about \$150 billion. So, within the span of a few months, close to \$550 billion of income is scheduled to be withdrawn from the U.S. economy – an amount that exceeds 3 percent of U.S. GDP. If Congress and the Administration cannot reach agreement and these two events are allowed to occur, the U.S. economy would fall into recession. This outcome is entirely avoidable, but only if Congress and the Administration can come to an agreement. The clock is ticking.

U.S. Agricultural Markets

Looming reductions in the American, Russian and Australian grain harvests will sharply curtail global grain supplies. Soybeans and soybean oil and meal will also be in extremely short supplies during the latter half of the 2012/13 season, following South America's disappointing crop harvests in early 2012. With the onset of the severe 2012 drought, grain and oilseed prices have rocketed to record highs.



The 2012 drought is the worst of the past half century. By the end of August, two-thirds of the nation's corn, soybean, and livestock industries were facing severe drought.

The near-term outlook for the agricultural markets depends critically on next year's South American crops. If they fall far short of the markets' towering expectations, as they did last season, the grains and oilseeds markets would end up tighter than a drum, with prices soaring to new record-highs. In coming months, producers and processors in the animal protein, dairy, and ethanol industries will be closely monitoring South American crop development and sharpening their risk mitigation strategies and skills.

Grains, Oilseeds, and Ethanol

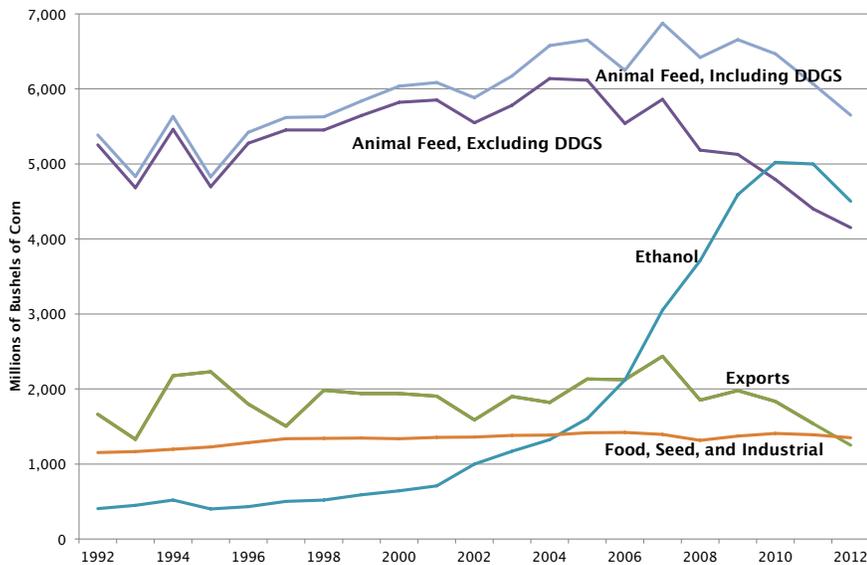
Growers are now harvesting what remains of their drought-damaged crops. As predicted, early reports indicate dramatic differentials in harvested yields, not simply by district or county, but also from field to field. As the crops are moved into storage and the calendar advances toward yearend, the grain and oilseed industries will keep a close eye on the strength of demand both domestically and abroad for indications as to how the short supplies will be rationed.

Corn

Corn producers have endured a wild ride through this year's growing season, as prices and projected yields diverged rapidly in July and August. Crop production estimates now range from 10.5-11.0 billion bushels, well below the 12.4 billion bushels harvested in the two

Exhibit 2: Alternative Corn Uses

Millions of Bushels



Sources: USDA and CoBank.

previous years. But regardless of the size of the crop, producers are expected to fare well in the 2012/13 season. Crop insurance indemnities and elevated prices are expected to push U.S. farm income to another record-high.

Grain handlers, however, will be less fortunate. Following the flurry of grain storage construction in recent years, the industry will fill its bins only to about 75 percent this year. Drying revenues will decline, and an inverted market will prevent elevators from earning a “carry” in the market as they hold inventory over several months. Grain handlers will also have to contend with much higher concentrations of aflatoxin in corn deliveries this season. (These higher concentrations are an ill side-effect of the drought-induced stress on the plants.) Elevators will be blending corn carefully to ensure that concentrations fall below the allowable threshold established by the U.S. Food and Drug Administration (FDA).

This year’s run-up in corn prices will unleash earnest demand rationing throughout the global marketplace. (See Exhibit 2.) Domestic ethanol demand for corn, for example, is expected to fall 10 percent year over year (YoY); and downsizing in the livestock and poultry industries will likely lead to a roughly 5 percent decline in

demand from the animal protein sector as well – and on the heels of the estimated 8 percent decline in feed use in 2011/12. At the same time, Brazilian corn exports have risen to an all-time high, while U.S. export commitments remain depressed. U.S. corn exports could fall as much as 20 percent in the 2012/13 season to a 30+ year low. As a result, the U.S. corn ending stocks-to-use ratio (S/U) will likely decline to about 5-6 percent and may set a new record-low. At the end of September, the USDA surprised the market with an unexpectedly bullish quarterly stocks report, which has compounded supply concerns.

Going forward, growers, processors, and traders will all be paying close attention to South America’s weather. All market

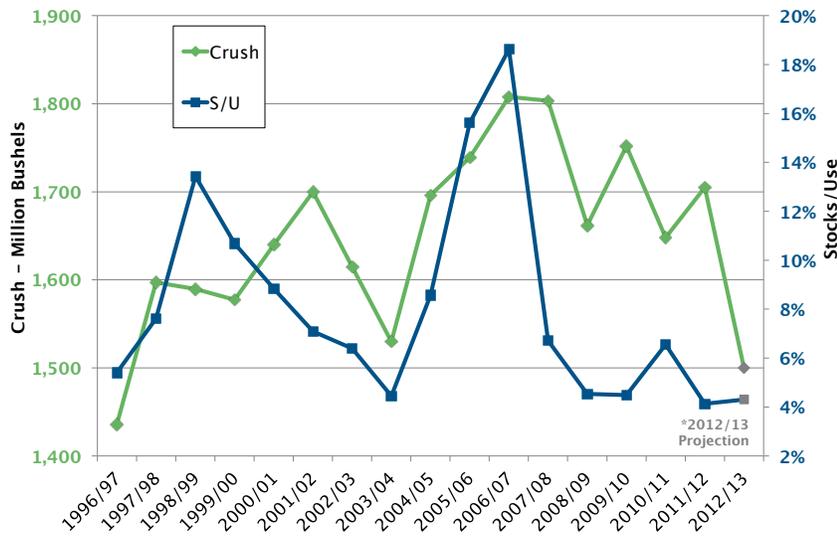
participants are anticipating that bumper corn crops will be harvested in Argentina and Brazil in early 2013. However, should rumors begin to emerge that the South American crop will disappoint, the corn market will move higher. Even if a strong South American harvest is realized, nearby futures are expected to remain above \$7.00 a bushel until the 2013/14 U.S. harvest.

Wheat

Growers across the nation have begun planting winter wheat, and the USDA is projecting another big U.S. crop. Production of all classes of winter wheat is projected to rise 13 percent YoY; and the hard red winter wheat crop is expected to post the largest gain, rising 30 percent over 2011. Thus far in 2012/13, elevated corn prices have caused wheat to be priced as an animal feed substitute, lifting prices for all wheat classes above levels that can be explained by traditional supply and demand elements.

The domestic S/U ratio for all wheat is expected to fall to a 5-year low in 2012/13, while remaining at a comfortable 29 percent. The global S/U ratio is also expected to slip this year to 26 percent, the lowest level in 4 years. However, as in the U.S., foreign supplies should be adequate to support demand.

Exhibit 3: U.S. Soybean Crush and Stocks-to-Use Ratio



Source: USDA-WAOB

Some weather-related crop risks do exist around the world, especially in Russia and Australia. If crop conditions in these two key production regions were to decline further, wheat prices could break out of their current pattern of following corn. Analysts are monitoring these crop conditions carefully.

Soybeans

In a season where the U.S. soybean market may be the tightest on record, industry analysts anticipate extremely volatile prices in the months ahead along with significant demand rationing. (See Exhibit 3.) Due to the short South American crop earlier this year, U.S. exports were much stronger than usual in the spring and summer months, and the 2012/13 supply was shaping up to be tight even before the drought began sapping yields. With the current U.S. crop now estimated to be 14 percent smaller than last year's, the S/U ratio is likely to remain steady, or could even slip below last year's 4 percent; and uncertainty abounds as to how high prices must rise to quell the world's appetite for soybeans. There is broad-based support for the notion that U.S. soybeans may be all but gone before the end of January, just in time for soybeans to be harvested in Brazil.

Dwindling U.S. supplies in early 2013 will likely spur a surge in imports during the latter half of the marketing year. Imports of soybeans and soybean meal are expected to double in 2012/13, with soybean oil imports growing about 40 percent. U.S. processors are bracing for the reverberations, as plant utilization will fall and high import costs will squeeze crush margins. The USDA is currently projecting that the U.S. crush will fall to levels not seen since 1996. Biodiesel producers are likely to cut production as much as 10 percent due to record-high soy oil prices, and livestock and dairy producers will step up their herd liquidations to curtail their purchases of soybean meal priced above \$500 per ton.

What happens to soybean prices over the next 6-9 months will depend critically on events outside the U.S. After building sizable soybean reserves in recent years, Chinese officials have sold about 3 million metric tons since late June and are expected to sell at least another 1 million tons before the South American harvest. Additionally, agricultural markets around the world are keenly anticipating ideal growing conditions in South America, with bumper crops expected in Brazil, Argentina, and Paraguay. Should those expectations be unmet, soybean prices could soar even higher in early 2013, as another battle for crop acreage is staged in the U.S.

Ethanol

Ethanol margins have been severely squeezed by the high corn feedstock prices. The industry cut production significantly in the early summer months as margins plummeted. However, production steadily rose in August and September as many plants followed the typical seasonal trend and increased plant throughput. As a result, inventories remain roughly 11 percent higher than year ago levels, and gasoline continues to sell at roughly a \$0.50 per gallon premium to ethanol. Stocks are stuck at 100 million gallons over 2010 and 2011 levels, and further

industry discipline will be needed to lift plant margins from their current losses of \$0.15-0.25 per gallon.

Debate about a waiver of the Renewable Fuel Standards has faded for the time being, but is certain to reignite when the EPA rules on the multi-state waiver request submitted in mid-August. Most analysts expect the waiver to be denied on the basis that blending economics continue to favor the use of ethanol over other octane enhancers, regardless of the mandate.

Over the next year, the beef and dairy industries will be watching closely the levels of aflatoxin present in distillers grains (DDGS), an animal feed that is a byproduct of ethanol processing. Through the ethanol fermentation process, aflatoxin levels typically rise three-fold in DDGS, as compared with those in corn. Therefore, corn blended at the elevator to contain a safe level of aflatoxin for animal feed may result in unsafe levels in DDGS. This will be a critical issue to the presumed safety and reputation of DDGS as an animal feed, and the ethanol industry must manage it properly to protect plant margins.

Animal Protein and Dairy

The animal protein complex will bear the brunt of the 2012 drought in the months ahead. With feed costs having risen more than 50 percent in just a few short months, the livestock industries will be adjusting their operations for months – or even years – in an effort to return to profitability.

Beef

Parched pastures and formidable feed costs have created uncertainty in the beef markets. Although slaughter rates are currently below 2011 levels, total beef production is expected to increase during the rest of the year as more cows are sent to the packing plants. The drought-induced liquidation is expected to taper off in the first quarter of 2013, after which beef supplies will decline precipitously. The cow-calf sector will remain in the black, albeit with margins that are significantly thinner than those of a year ago. Reduced profitability will result in a smaller calf crop, which will compound the shortage of beef supplies for years to come.

“The animal protein complex will bear the brunt of the 2012 drought in the months ahead.”

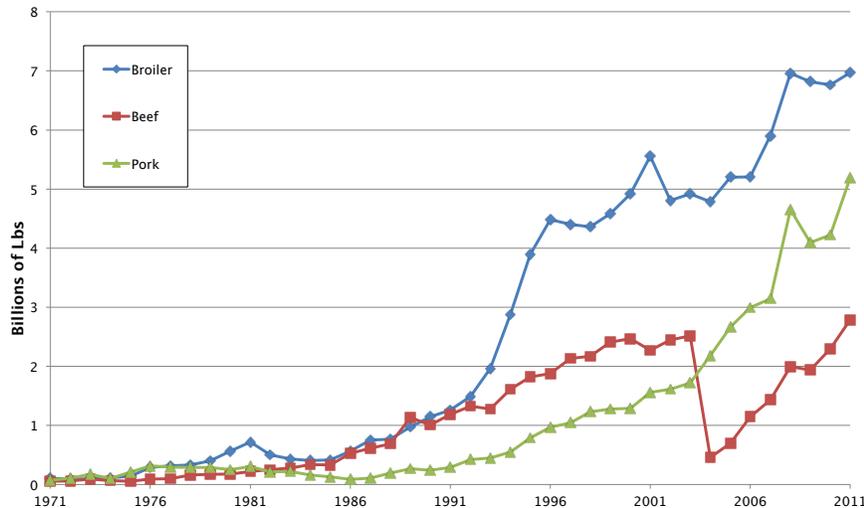
Cattle feeders continue to operate under significant pressure as average losses exceed \$100 per head on an unhedged basis. Dismal returns for the sector are expected to continue well into 2013 and perhaps even into 2014. Beef packers are better positioned, especially in the short term as increased plant utilization rates bolster their margins. However, as the cattle supply dwindles in early 2013 and record-high beef prices become increasingly difficult to pass onto the consumer, packers will likely experience some margin compression. Consumers, in turn, should see a slight break in beef prices through the remainder of 2012 and into early 2013 before retail prices soar to new records later in 2013. If consumers resist higher prices and substitute away from beef to other proteins, packers and feedlots are likely to see further margin deterioration.

Export sales are expected to increase modestly during the closing months of the year, yet remain about 10 percent below what they were a year ago. (See *Exhibit 4.*) High beef prices and a stronger U.S. dollar are expected to constrain the growth in exports into early 2013. But then in early 2013, tight domestic supplies are also expected to curtail sales abroad. One bright spot in U.S. beef trade is the recommendation by Japan's Export Commission to lower its age limit for U.S. beef, thereby increasing the share of U.S. slaughter eligible for Japan's beef market. Since the BSE scare in 2004, beef exports to Japan have been stymied through trade restrictions. If the Japanese government accepts the Commission's recommendations, this relaxation could significantly aid in restoring long-run U.S. beef exports to pre-2004 trends.

Pork

The pork industry's shrinking margins and looming losses testify to its sluggish reaction to the run-up in grain prices during the summer months. Earlier this year, hog producers were poised to expand production. As a result

Exhibit 4: U.S. Meat and Poultry Exports, 1971-2011



Source: USDA.

of higher input costs, however, producers have abandoned their earlier plans and are now in the process of liquidating their breeding herds. But they have been slow in doing so. Producer margins have already shrunk in 2012 to a level less than half those of 2011, and margins will remain highly vulnerable over the rest of 2012 as well as next year. Reductions in the breeding herd in the second half of this year will lead to a profound decline in the volume of pork available during the second half of 2013.

Pork prices reflect an industry in distress. High feed costs have contributed to surging break-even prices, while the large market supply has depressed hog prices. With feed costs expected to remain high through early-2013, futures prices suggest that large losses loom for the pork markets. Pork cutout prices are expected to average \$75 per cwt through the end of the year, down 18 percent from those in Q4-2011. Sow prices are expected to hover around \$36 per cwt through the end of 2012, reflecting a 41 percent drop from Q4-2011.

The industry's only hope for getting market prices realigned with break-even price levels is by culling the herd 1-2 percent through early 2013. However, given the heel-dragging by producers in response to current market conditions, it remains to be seen whether the

industry can tailor its production to curtail the current hemorrhage in profit margins. If not, bankruptcies loom for 2013.

Although producers managed to weather prior market downturns, they may not all be able to do so this time around. Two large Canadian pork producers filed for bankruptcy protection in September, signaling that more filings may be in the offing. On the flip side, producers did have the option earlier in the year to lock in profits through mid-2013. Those that took advantage of that opportunity should have few problems navigating the choppy markets of the next 6-9 months.

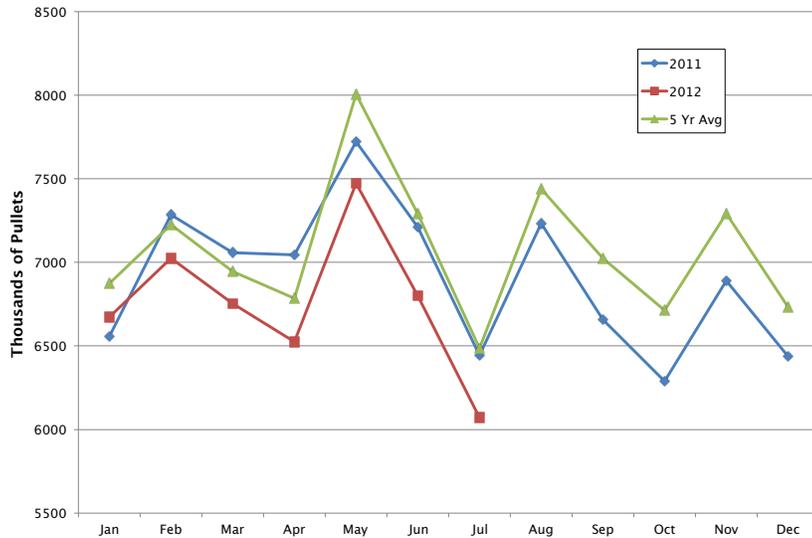
Broilers

After trimming inventory and cutting back on production during the past 12 months, the broiler industry is better poised to weather the shock of high feed prices through 2012 and into 2013.

Although broiler prices remained strong throughout the summer months, the poultry industry is exercising unusual restraint in curtailing flock growth. Chick placements are down 2.5 percent year to date from the same period in 2011, reflecting the industry's determination to maintain a disciplined approach to evolving market conditions. (See Exhibit 5.) Slaughter rates are expected to slow through the third quarter by 1.3 percent YoY. Cold storage supplies are well below year-earlier levels and are expected to run lean well into 2013, with tight supplies likely encouraging stable prices through the remainder of this year.

Going forward, tight domestic supplies, coupled with sturdy export demand for dark meat, should keep broiler prices elevated for the remainder of the year. Although fall usually ushers in seasonal price declines, wings and thighs are expected to command strong prices, partially fueled by increases in export demand. Breast meat is

Exhibit 5: Chicken Pullet Placements



Source: USDA.

also expected to command elevated prices during the closing months of 2012, with average prices up 7.6 percent from a year ago. Prices for all cuts are expected to decline slightly during the first quarter of 2013 due to a seasonal slowdown in demand, but should remain well ahead of where they were a year ago.

Elevated feed costs are likely to eat into chicken companies' profit margins during the rest of 2012 and the first part of next year. Feed costs are projected to peak during the fourth quarter, pushing margins for large-bird producers slightly negative, before breaking back into positive territory in early 2013. Small bird operations, however, could experience more substantial losses of \$0.05-0.10 per pound through mid-2013 due to decreased restaurant demand. Assuming normal-sized South American crops in 2013, feed costs are expected to taper off slowly through the year, improving margins across the industry. (Of course, all bets are off if next season's South American crops go awry.)

With high slaughter rates expected to continue in both the beef and pork herds, large supplies of both proteins are anticipated for late-2012 and early-2013. However, as these supplies dwindle, red meat prices will resume their climb upward. In turn, per capita consumption of

red meat is expected to fall in the first half of 2013, while broiler consumption increases.

Turkey

Following large poult placements in June in preparation for seasonal fall slaughter, growth in the turkey flock has been curtailed in Q3-2012 as higher feed costs began to impact the industry. Slaughter rates are expected to be up on average about 4 percent YoY through the end of the year, and the pickup in supply will put downward pressure on prices. Due to the cheaper feed available through June, turkey liveweights are expected to be up 4.7 percent on average through Q4-2012 before peaking at a record in January 2013 and then declining seasonally. Ready to cook production is expected to increase 4 percent through 2012

and then begin a steady decline through 2013, signaling a slowdown in the sector. As production strengthens and inventories mount, the industry's margins will likely remain mostly negative through Q1 2013.

Turkey exports continue to be the saving grace for the industry. Year-to-date shipments are up 12 percent from the same period in 2011, and shipments for all of 2012 are expected to rise 10 percent to set a new record. This year will mark the third consecutive year of export growth for the industry.

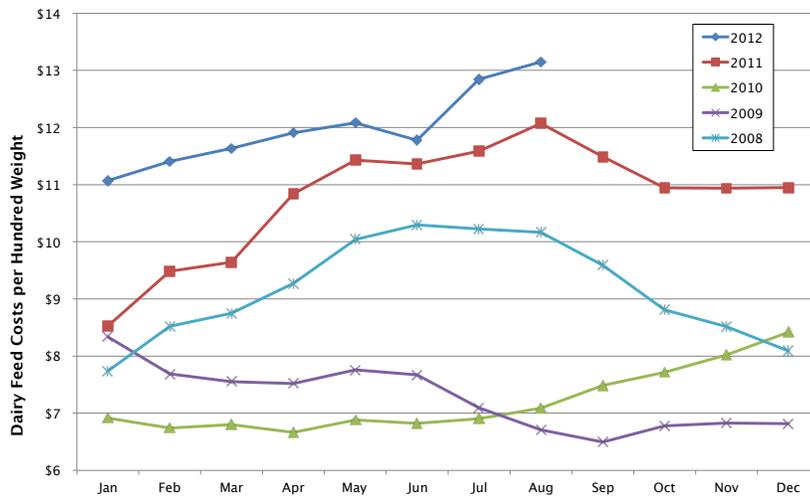
Dairy

This year's drought has also squeezed dairy profitability. Against the backdrop of elevated feed prices, the availability of high-quality feed, including hay, will be a looming question for the foreseeable future. (See Exhibit 6.) All has not been lost, however, as milk and dairy product prices rallied sharply over the summer and have steadied going into fall.

After being awash in fluid milk through early-May, milk production turned the corner in August with the first YoY decline in production (minus 0.3 percent) since January 2010. Output decreased the most in the Western states, with California milk production falling almost 6 percent

Exhibit 6: National Average Dairy Feed Costs

\$/cwt



Source: USDA.

YoY. Cow numbers have been on the decline since their April peak; they fell another 6,000 head in August and are expected to continue to shrink through 2013.

Just as significant as the declining herd size, however, is diminishing per-cow productivity, a deviation from the long-standing upward trend. While record July heat dropped milk per cow close to year ago levels, YoY productivity actually declined in August, which was only the second YoY drop since early 2009. Productivity dropped the most in the West, because of the West's dependence on purchased feed, the higher cost of feed (with ingredient substitution), and feed quality issues, especially with alfalfa. Going forward, dairies will have to be vigilant in feeding corn and corn-based DDGS to their cows, as aflatoxin concentrations are unusually high in this year's drought-damaged corn crop.

As milk production declined, milk prices strengthened through and beyond the summer months. Class III milk prices climbed above their May lows, which were below \$15.75/cwt and settled into a less volatile September range of \$18.75-\$19.00/cwt. In addition to higher market prices, producers also benefited from payments through the Milk Income Loss Contract Program (MILC), where the income supplements ranged from a low of \$0.39/cwt in February to a high of \$1.64/cwt in July, based on the

ratio of feed costs to milk prices. However, the MILC payments ceased to exist at the end of September, with the expiration of the 2008 Farm Bill. Overall, the all milk price is forecast to average \$17.80-\$18.00/cwt in 2012 and \$17.85-\$18.85/cwt in 2013, versus \$20.14/cwt in 2011.

Processed dairy product prices followed milk prices higher during the summer. After peaking in August and early September, the prices of nonfat dry milk (NDM), butter, cheese and whey have all settled at moderately strong levels and are projected to remain firm through the balance of the year. These higher U.S. product prices, however, have impaired their competitiveness in global markets. New Zealand and Australia

are just reaching their peak production season (with good weather and output up 4 percent YoY), and their product prices are now generally below those for the U.S. and Europe. After a strong run through early 2012, U.S. exports declined in July and August, especially for NDM and butter, although cheese exports have so far remained robust. Global demand has remained relatively strong, but price competitiveness will remain key for U.S. dairy product exports through the remainder of the year and into 2013.

Other Commodities

Domestic cotton, sugar, and rice growers will be hard-pressed to maintain their current acreages in the face of this year's production shortfalls in the nation's corn and soybean crops. Rice and sugar will likely be somewhat sheltered from acreage shifts due to their favorable net returns, geographic limitations on where they can be grown, and U.S. policy. Cotton acreage, however, looks highly vulnerable.

Cotton

In the face of mounting cotton stocks, cotton prices appear to be headed lower. U.S. and global stocks remain extraordinarily high, with this year's S/U ratio



Next year, growers will likely plant less cotton acreage and more corn and soybeans.

estimated to be 35 percent in the U.S. and 71 percent in the global market. High and volatile prices in recent years spurred the global textile industry to convert much of its production away from cotton in favor of synthetics. The most dramatic impact to the industry has been the shift away from cotton in China's textile mills. Most analysts predict that recovering the loss in market share will take years, if in fact it can be achieved at all. The sluggish global economy has also compounded the ill-effects of synthetics substitution.

U.S. cotton consumption is projected to grow 3 percent in 2012/13, albeit from last year's historically low level. Plus, this modest gain in consumption will likely be more than offset by an even larger 12 percent YoY surge in domestic production. In contrast, world production in 2012/13 is projected to fall by 8 percent, due mostly to a decline in planted acreage, as grain and oilseed crops are yielding higher returns. Production in Australia and Brazil, the two largest cotton producers in the southern hemisphere, is expected to fall by 18 and 30 percent, respectively. China's cotton planted acreage is the lowest in a decade. But even with these large reductions in planted acreage, world supply is still projected to outpace consumption. China accounts for 35 percent of global cotton consumption, and mill use there is likely to fall 3 percent.

With the weakness in world economic growth projected to persist through 2013, cotton consumption is not

expected to improve any time soon. High grain and oilseed prices, though, should induce growers to cut back sharply on their planted cotton acreage in 2013, thus initiating the multiyear process of bringing cotton supply back into balance with demand.

Rice

The 2012/13 rice outlook improved considerably during the third quarter. Analysts had feared that Hurricane Isaac would damage the Delta long grain crop, but an accelerated and early harvest helped minimize storm damage. August and September brought upward production revisions from the USDA, based on increases in harvested acreage as well as in yields. Total U.S. production is now projected to increase by 6 percent YoY, with Arkansas and Missouri accounting for the entire gain.

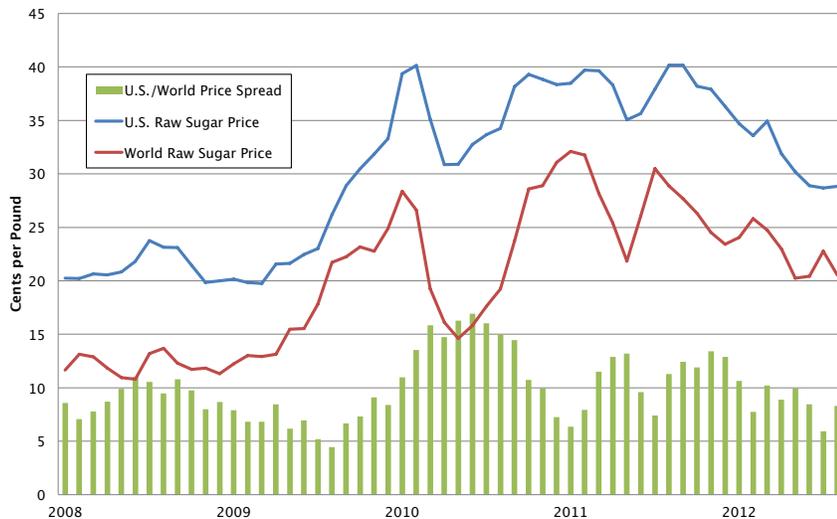
Analysts are projecting that domestic consumption will outpace the growth in supply, however, as a small carryin will reduce U.S. 2012/13 ending stocks by 25 percent and cause the S/U ratio to fall from 19 to 14 percent. U.S. prices will remain mostly above the world price, as the global S/U remains relatively steady at 22 percent. The result is expected to be a 2 percent decline in U.S. exports. Imports, comprised mostly of Thai premium varieties, are expected to edge down YoY.

The projected increase in total U.S. production in 2012/13 reflects sharply divergent movements in the different classes of rice. Long-grain supplies are projected to increase by 6 percent this year, while medium- and short-grain supplies will slip by 8 percent YoY. A 19 percent YoY increase in long grain production will be offset somewhat by a 32 percent smaller carryin. Conversely, a 15 percent YoY decline in small- and medium-grain production will be offset by a 46 percent larger carryin than in 2011/12.

Prices for both classes received a boost during the third quarter as rice followed the drought-impacted grain complex. The recent upward production revisions were significant enough, however, to likely limit the ability for rice to follow any future grain rallies. But by the same token, downside price risks are also limited, inasmuch as rice will again need to compete for acreage in early 2013.

Exhibit 7: Monthly Raw Sugar Price, 2008-12

United States vs. World



Source: USDA ERS.

A potentially problematic issue, centered on arsenic, has recently surfaced for the U.S. rice industry. A study conducted by Consumer Reports is making waves about the levels of arsenic detected in common rice-based food items, and urges the FDA to set upper limits for arsenic in food. Rice industry associations oppose such regulations, and are contesting the study's claim that consuming large quantities of rice can be unhealthy. Thus far, South Korea, the sixth largest importer of U.S. rice, is the only export destination that has responded to this report. South Korea has halted all inbound shipments and suspended the sale of existing U.S. rice stocks, pending tests for arsenic. It remains to be seen what impact, if any, the study may have on U.S. consumers and other export markets.

Sugar

Sugar prices appear to be headed lower. World sugar prices hit 18.90 cents per pound in early June, after having declined fairly steadily since July 2011. Poor weather in Australia, India and Brazil broke this downtrend. U.S. sugar prices had held a relatively consistent 11 cent margin above the world price until earlier this spring, but the premium has since shrunk to 8 cents per pound. Over the next 6-12 months, analysts are projecting that world prices will trend downward due

to excess supply, with U.S. prices likely to follow suit. (See Exhibit 7.)

Global sugar stocks are expected to increase 7 percent this year to 10.7 million metric tons, raw value (MTRV) in 2012/13. At the same time, Brazil and India will struggle to maintain production as severe wet conditions impaired Brazil's harvest and disappointing monsoon rains have reduced India's crop. However, these two shortfalls are temporary, weather-related events and will not provide longer-term support for world prices.

Domestic sugarcane and sugar beet crops supply roughly 65 percent of U.S. demand, and the remaining 35 percent

is filled nearly evenly by imports from tariff rate quota (TRQ) countries (a WTO obligation) and from Mexico. With domestic producers anticipating a bumper crop this year, imports are likely to decrease in the 2012/13 season. Mexico is expected to increase production in 2012/13 and may elect to use more of its domestic supply as the drought stricken corn crop this season is likely to increase the price of corn sweeteners. It is estimated that the net costs of producing high fructose corn syrup could increase as much as 38 percent.

The current U.S. sugar crop appears to be in great shape and unaffected by the severe drought that has gripped much of the country. Sugar beet production for 2012/13 is estimated at a record 35.6 million tons. Excellent growing conditions in the Red River Valley (Michigan, Minnesota, and North Dakota), along with improved production in the Great Plains and Pacific Northwest, are the main drivers behind the production increase. Sugar cane acreage increased 2.1 percent (Florida and Louisiana) and yields are expected to reach 35.2 tons per acre, 4.5 percent above a year ago. Crop lodging in Louisiana due to Hurricane Isaac has lowered projected sugar cane production from 31 tons per acre to 30 tons per acre. Lasting effects of Hurricane Isaac on sugar production are expected to be minimal if continued dry

weather prevails. FY 2012 production is expected to reach 8.3 million short tons, raw value (STRV) leaving a comfortable stocks to use ratio of 13.5 percent.

Sugar policy in the next Farm Bill is likely to remain unchanged. Sugar policy essentially has two control levers – one in the form of marketing allotments that limit the amount that processors can sell and the other consisting of import quotas limiting the amount of foreign sugar that can be imported. Neither of these levers requires any government outlays.

Fruits, Nuts, and Vegetables

While other agricultural sectors have been challenged by the severe 2012 drought, the nation's fruits, nuts, and vegetables (FNV) industries escaped largely unscathed, as the majority of these crops are either grown outside of the hardest hit areas or are irrigated. Likewise, the impact of hurricane Isaac was minimal; although some crops in Louisiana sustained damage, the heavy rains that made their way inland delivered much needed and well-timed moisture to parched crops such as Mississippi's peanuts and Ohio's vegetables. Although a late-July hailstorm did dash hopes for a record apple crop in Washington, weather conditions during Q3-2012 were conducive to normal yields and harvests for the FNV sector.

Fair weather conditions in California have been favorable to the state's FNV growers. Citrus farmers expect a good fall crop, with mandarin varieties kicking off the harvest in mid-October. Wine grapes are also set to do well this season. The mild, dry weather resulted in good vine growth and canopy development. After several challenging years, wine demand is on an upward trajectory, bolstering wine grape prices and boding well for wine grape growers. U.S. olive oil producers are also anticipating a good year, as more and more consumers learn that domestic olive oil often offers better quality than many of the well-recognized European brands. Analysts project that domestic olive oil will capture a 5 percent market share in the next five years. This year, nearly every category of tree nut is expected to top last year's production. Almonds are projected to increase 3 percent YoY; pistachios, at least 25 million pounds over the 2010 record of 522 million pounds; and walnuts, 2



In the face of increasingly scarce farm labor, many FNV growers are embracing mechanization.

percent YoY. Growers of each nut variety expect to sell the incremental product overseas.

Total produce sales nationwide grew nearly 3 percent in Q2-2012 from the previous quarter, reflecting a 2.9 percent volume increase and a 0.9 percent price advance. Fruit products accounted for the entire increase. Fresh fruit sales were up 5.3 percent from the first quarter and 1.6 percent above a year ago. Despite a 1.4 percent gain in volume, total vegetable sales slipped 1.4 percent in Q2-2012 from the prior quarter, due to price declines in many items, including such staples as potatoes, lettuce and tomatoes.

Consumers today are discriminating food-shoppers. The FNV industry will need to provide better information on origin, uses, nutrition and health benefits in order to engage buyers and bolster sales. A continued focus on differentiated, value-added products will also help to capture more wallet-share. Red spinach, apple pears and plumcots are just a few examples of the differentiated products that can build brand recognition and garner premiums from retailers. Similarly, value-added, or fresh-cut, pre-packaged and other ready-to-eat fruits are also contributing to increases in overall produce sales. In Q2-2012, the value-added fruit category grew in both YoY dollar sales and YoY average price by 9.2 percent and 9.0 percent, respectively. The largest gains in this category continue to come from organic produce.

“*Farm supply retailers remain tethered to the commodity markets.*”

While dollar sales of conventional vegetables fell during Q2 2012, sales of organic vegetables grew by nearly 15 percent. Organic fruit posted an even stronger showing, with a 20.3 percent rise in sales in the second quarter. This robust growth is expected to continue in spite of a recent Stanford University study which concluded that organic food provides few nutritional benefits above those of conventional food. Industry insiders also report that consumers exhibit a strong preference for locally grown produce in the Midwest that is eclipsing their preference for organic in some locations.

Sales in the processing sector are also picking up, with contracts and deliveries for many canned and frozen commodities having increased during the year. Additionally, experts expect that the private label market will double in the next five years as retailers boost profitability, build customer loyalty and differentiate themselves from other retailers with in-house brands.

Many FNV industries have been successful in cultivating overseas markets for their products. Vegetable sales abroad during the first seven months of 2012, for example, matched sales posted for the same period of 2011. Fresh fruit exports grew 10 percent YoY during the first seven months of the year, with export sales totaling \$2.77 billion. The South Korean free trade agreement has been a boon to fruit and vegetable exports. Growers also expect ample opportunities to export pears and apples as the competing European crops are expected to be stunted. Tree nuts are anticipated to bring in an additional \$800 million in 2012, which should push total export sales of tree nuts to \$7 billion.

The export markets are not without risks, however. Impending trade rules in Indonesia could threaten this \$56 million produce export market. Additionally, Mexico warns that it will reinstitute a 20 percent tariff on a number of agricultural goods, including many FNV products, if the cross-border trucking pilot program fails to take hold in the next one to two years.

Food safety remains a paramount concern for the FNV industries. A recent outbreak of two strains of salmonella caused two deaths and more than 150 illnesses; both strains were traced back to cantaloupes from a single

grower in southwestern Indiana. The industry continues to implement science-based processes to safeguard against contamination. Additionally, by year-end 2012, the majority of FNV supply chains will have implemented a voluntary Produce Traceability Initiative, which provides for case-level traceability and quick, efficient produce recalls. The FDA has come under fire in recent months for failing to issue regulations as called for under the Food Safety Modernization Act.

Labor issues continue to dog the FNV industry. A decrease in immigrants from Mexico has caused a severe drop in migratory workers. Growers who are hard pressed to recruit adequate labor during peak harvest times face increased labor costs or pressure to mechanize harvests that they would prefer to pick by hand. A new twist in the labor story comes in the area of transportation. Trucking companies have seen a shortage of long-haul truck drivers, which is pushing up freight rates and delaying deliveries in some cases.

Farm Supply

Farm supply retailers remain tethered to the commodity markets. The fall fertilizer application season for spring crops will begin soon. Elevated commodity prices backstopped by crop insurance are expected to produce another record farm income, this year. Farmers' supercharged purchasing power will likely set the stage for a strong fall application season. However, continued price volatility will force many retail suppliers to “wait and see” how and when farmer demand picks up this fall before making large inventory purchases.

Fertilizers

The 2012 drought left many growers wondering what to plant next year. Corn and soybean stocks are at near rock-bottom levels, placing a heavy burden on South America to bring relief to an already dire world supply situation. Soybeans are expected to be the crop of choice in South America leaving U.S. producers with a tough

decision around planting corn or soybeans. But based on current revenue calculations, it is likely that next year's U.S. corn acreage will be close to this season's 96 million acres. Early corn and soybean harvests (17 and 6 percent ahead of the 5 year average, respectively) will allow ample time for fall fertilizer application on next year's corn acres. Assuming that more normal weather patterns prevail in 2013/14, farmers will likely make the investment needed in fertilizer, seed and crop protectants to push yields as high as efficiently possible.

Ammonia market conditions remain tight due to transportation issues and volatile prices. Amidst the Corn Belt, ammonia prices have been escalating off of June's seasonal lows. Ammonia demand is likely to strengthen coming into the fall application season. The market consensus appears to call for continued firm-to-upward price movements from the current \$790 per short ton range as we progress into the fourth quarter. Many farmers have likely sold a portion of next year's crop at relatively high prices allowing them to apply appropriate levels of ammonia this fall.

Conditions in the urea and UAN markets have eased considerably since the beginning of the spring planting season. The price of urea has fallen from above \$700/ton in mid-March to around \$500/ton in mid-September. Supply has caught up to and surpassed demand, causing prices to sink like a stone. The price of UAN has been on a parallel track, dipping below \$400/ton in early September. Looking ahead, UAN and urea prices should remain flat with some support coming as fall wheat planting begins to pick up. Top-dress activity in fall planted wheat will likely provide continued support for UAN prices moving through the fall and into next spring.

Phosphate sales appear to be gaining traction in the U.S. DAP and MAP prices have escalated recently in the U.S., with the pick-up in seasonal demand. However, the recent upward price momentum appears to be attributable more to short supplies and transportation issues from Hurricane Isaac than to strong underlying fundamentals. In coming months, DAP and MAP prices are expected to remain relatively flat until farmers begin paying for fall tons because retailers are reluctant to build inventory amidst price uncertainty. Within the Corn

Belt, phosphate prices have strengthened into the fall season to around \$570/ton, roughly 7.5 percent above early-June levels. In the near term, DAP and MAP prices should remain around current levels with risks tilted to the upside, assuming that farmers eventually do begin to place their fall orders.

Potash markets remain weaker than the other fertilizer markets. High inventory levels are dragging current prices lower. Potash prices are likely to remain at current low levels (e.g., Mid-Corn Belt, \$510/ton) reflecting a similar wait-and-see approach as retailers postpone building inventories until farmers begin making purchases.

Other Crop Inputs

Total farm production expenses in calendar 2012 are expected to set another record at \$329.1 billion, a 6 percent increase over the previous year. Manufactured inputs, feed, livestock and seed expenditures are expected to post the biggest increases.

Seed expenses are expected to grow 10.9 percent YoY, marking the fourth consecutive yearly increase. Continued robust planted acreage for corn and soybeans and improved genetics will keep expenditures on an upward trajectory for next season. While drought-stricken crops in 2012 may lead to lower domestic volume availability, representatives of the major seed companies claim that there will be a plentiful supply in the coming year as many of the seed crops are produced under irrigation, thereby mitigating the drought stress. South American seed production is also expected to increase.

Some analysts are projecting that seed prices could increase as much as 20 percent next year based on elevated grain prices, tight domestic supplies due to the drought, and the added expense involved in importing seed from South America. We think that the actual increase in seed prices will be positive but far below the 20 percent mark, but we'll be carefully monitoring harvest progress, planting intentions, and new developments around available seed supplies as the season moves forward.

High commodity prices influence a farmer's willingness to purchase and apply appropriate amounts of insecticides

and herbicides to reach optimum yield targets. Pesticide expenses have increased 9.5 percent above year ago levels. However, pesticide prices have been far less volatile than those of many other farm inputs. Higher costs are likely due to expanded acreage and the level of pest infestation in a given growing season. In the near term, pesticide prices are expected to remain relatively flat as we progress into the winter months.

Looking ahead to 2013, fuel and oil expenses are projected to increase 6.5 percent YoY to \$16.6 billion. Diesel is the main fuel used for field equipment. Crude oil accounts for about 60 percent of the cost of diesel, refining for 15 percent, distribution and marketing for 12 percent, and taxes for the remainder. Motor fuel consumption nationwide is expected to edge downward as the fall season progresses reflecting continued slow growth in the economy, and increases in fuel economy from technological advances in vehicles. The Energy Information Administration anticipates that the price of on-road diesel fuel will hover in the range of \$3.50-4.00 per gallon this coming season. However, in view of the continued unrest in the Middle East, any projections of oil or fuel prices encompass a high degree of uncertainty.

Rural Infrastructure

Infrastructure industries – including communications, electric power generation, transmission, and distribution, and water utilities – are highly diverse. Yet, in varying degrees, they are all tied to the health of the U.S. economy. In addition, regulatory and legislative issues continue to be major, ongoing concerns for all of them.

Energy Commodity Markets

Oil prices continue to make news headlines. After falling sharply from March to July, crude oil prices have rebounded since then, with the WTI spot price rising to and then leveling off at \$91-96 a barrel. The risk premium in global oil prices has ballooned in recent weeks in response to renewed tensions between Iran and Israel as well as to the anti-American protests that have flared-up across the Middle East spurred by an inflammatory video.

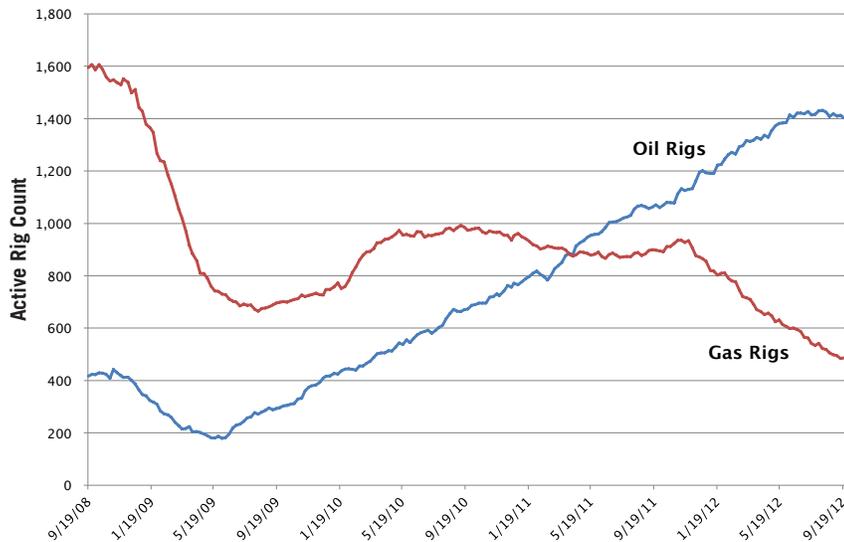
“*Most energy analysts today foresee that the current glut of natural gas will end soon.*”

Domestic U.S. oil production continues to grow, climbing from a trough of 4.95 million barrels a day in 2008 to 6.25 million barrels a day in Q2-2012. Application of the new well drilling techniques involving fracking has benefited domestic oil production, as well as domestic gas production. Hurricane Isaac led to the shut-down of wells and a loss of 13 million barrels of crude oil production from August 25 through September 10 in the Gulf of Mexico. But this was just a temporary halt, and a drop in the bucket. (Those 13 million barrels of lost oil amount to just 0.5 percent of annual domestic output.) Analysts at the U.S. Energy Information Administration (EIA) are projecting that domestic oil production will total 6.32 million barrels a day in 2012 and 6.73 million barrels a day in 2013.

Natural gas production has increased dramatically in recent years. Oil and gas companies have had to step up their gas well drilling recently in order to hold onto the land leases that they have signed in recent years, entitling them to drill wells within a specific time period. As a result, gas production has trended upwards, the natural gas inventory in storage has climbed to an historically high level, and natural gas prices fell below \$2.00 per MMBtu during Q2-2012. Gas prices, however, have rebounded since then.

Most energy analysts today foresee that the current glut of natural gas will end soon. Gas companies have already sharply curtailed natural gas drilling in response to present market conditions. Baker Hughes reported that the natural gas rig count was at 452 rigs in early September, nearly 50 percent below the 900 natural gas rigs in service in August 2011. (*See Exhibit 8.*) Because individual shale wells exhibit a very rapid decline in production over time, even a slight drop in rig count is likely to cause reductions in overall gas supply. Given the 50 percent drop in well drilling that has occurred during

Exhibit 8: Active U.S. Rig Counts, Gas and Oil



Source: Baker Hughes.

the past year, analysts are projecting that the current gas glut will be gone by the winter 2013-14 season – and that gas prices will rise.

Some of this upward price adjustment has already occurred. The average spot price for Henry Hub natural gas climbed to \$2.80 per MMBtu for the week ended September 21, 2012 from the cyclical low of \$1.86 per MMBtu for the week ended April 20, 2012. Analysts at the EIA are calling for natural gas prices to rise to about \$3.00 per MMBtu by yearend 2012 and then to continue to climb, reaching \$3.62 per MMBtu by yearend 2013.

Electricity Industry

Total U.S. consumption of electricity has trended slowly downwards during the past year and a half. For the first six months of 2012, total consumption declined 2 percent from a year ago. This YoY decline in consumption was concentrated in the first three months of the year and reflected the unusually mild winter temperatures. To a lesser extent, this YoY decline also reflects what the EIA believes to be a long-term trend toward greater energy efficiency due to improvements in the efficiencies of appliances and building shells. For all of 2012, the EIA is projecting a 0.8 percent YoY decline in total electricity consumption to 3.829 billion kilowatt

hours. If realized, this projected level would be about 2 percent below the cyclical peak reached in 2007.

U.S. electric utilities continue to shift their power-fuel sources toward natural gas and renewable fuels and away from coal. For the first seven months of 2012, these utilities added 9,555 MW to the nation's power grid – i.e., a 0.9 percent addition to the nation's total capacity of 1,062,823 MW. This incremental growth included 4,248 MW (44 percent) of natural gas-fired capacity, 2,760 MW (29 percent) of wind capacity, 1,671 MW (17 percent) of coal-fired capacity, and 452 MW (5 percent) of solar capacity. However, these additions to capacity were partly offset by retirements

totaling 3,000 MW of capacity, of which 57 percent were coal-fired units.

These trends involving large additions of gas-fired and wind-powered facilities, along with retirements of coal-fired generation, will likely continue going forward, assuming that the incumbent government remains in power. For the first six months of 2012, the share of total electricity generated by natural gas amounted to 30.4 percent, well above the 22.3 percent share posted a year ago. However, in June, the spot price for natural gas surpassed the spot price for Central Appalachian coal (on an energy-equivalent basis) for the first time since October 2011, suggesting that the recent trend of natural-gas-fired generation displacing coal-fired generation may be slowing and could even reverse for a brief period. Indeed, the EIA is projecting that natural gas prices will rise during the next year or so and that, as a result, the share of natural gas-fired generation will decline 9.5 percent while coal-fired generation will increase commensurately by 9.3 percent.

Water Utilities

The nation's water utilities are struggling to cover their short-term operating and maintenance (O&M) expenses. According to the results of a 2012 survey of American

Water Works Association members, more than half of utility respondents reported that their operating income and rates were inadequate to cover their O&M costs. Moreover, the proportion of utilities experiencing such revenue shortfalls appears to be rising.

Although water utilities could fix this problem simply by raising their rates, they are loath to do so because they anticipate stiff resistance and pushback from their customers. American consumers, it is often said, regard water rate increases as tantamount to tax hikes.

Many municipalities across the nation appear to be challenging this conventional wisdom. According to the latest annual survey of 50 major U.S. cities conducted by American Water Intelligence (AWI), the combined tariffs for water and wastewater increased 5.8 percent on average for the year ended in July 2012. While AWI points out that this increase is smaller than the 8.1 percent hike posted in the prior year, it is striking that the latest increase is as big as it is and well above the rate of inflation. And in a number of cases, the tariff increases were double-digits. At the top of the list, for example, was Omaha NE with a combined tariff increase of 27.3 percent, closely

followed by Chicago with a 27.0 percent hike. Chicago's Department of Water Management has announced its goals to replace 900 miles of water pipes and 750 miles of sewer mains over the next decade. Considering that much of the nation's water infrastructure – for drinking water, wastewater, and stormwater – is nearing the end of its useful life, it is likely that many other water utilities will be raising their rates by substantial amounts during coming years. American consumers may dislike water rate increases, but they also tend to be pragmatic in the face of looming crises.

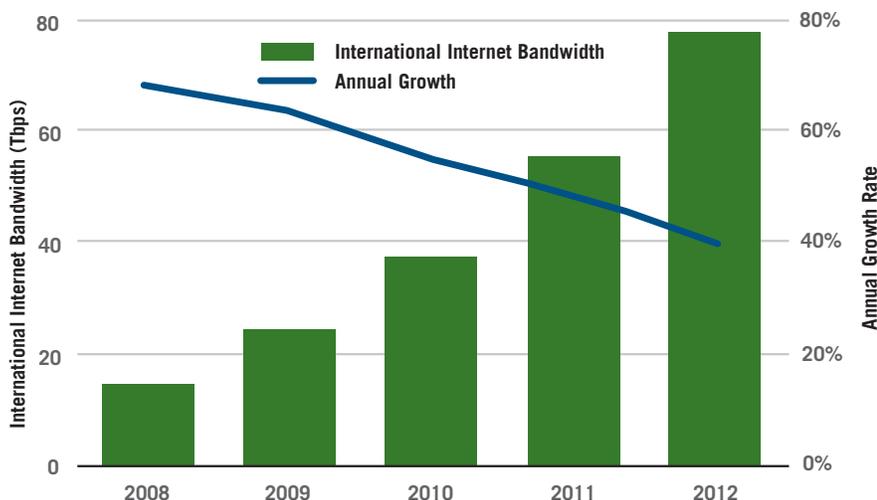
Communications

Communications providers that have abandoned the notion that they are simply a telephone or cable company and have embraced the reality that they are a broadband business are reaping the benefits of that crucial strategy shift. Every broadband metric continues to grow at astonishing rates. So far this year, global Internet traffic has grown by 35 percent, and bandwidth capacity has increased by 40 percent worldwide, bringing the total network capacity to 77 terabits per second (Tbps).

(See Exhibit 9.) During Q1-2012, the average Internet speed in the U.S. reached 6.7 megabits per second (Mbps), a 17 percent jump from the average speed in Q4-2011. Yet, with eleven nations around the globe boasting faster speeds, and with Google rolling out a 1,000 Mbps network in Kansas City, there is clearly room for advancement. And even though the 2012 growth rates are decelerating from previous years, industry insiders still expect global Internet capacity, traffic and speeds to post double-digit gains for at least the next five years.

The driving force behind these astounding numbers is the unprecedented adoption of consumer devices like the smartphone and tablet. Researchers expect that smartphone manufacturers will ship 567 million

Exhibit 9: International Internet Bandwidth Growth, 2008-2012



Source: TeleGeography.

units by the end of 2012, and that the number of smartphones sold will total nearly 1.2 billion units in 2016. Tablet adoption rates have been even more impressive; in just a few short years, sales of tablet computers have exploded. In 2010, tablet makers shipped 17.3 million units. During the second quarter of 2012, Apple alone shipped 17 million iPads. The industry estimates that it will have shipped more than 100 million tablets by the end of this year. Today, nearly 90 percent of all media interactions are screen-based, and 90 percent of those interactions use multiple screens. Additionally, consumers who own a tablet, smartphone and PC report that they use their devices fairly interchangeably to surf the Internet, manage their finances, and make travel plans. They also use multiple devices simultaneously. Seventy-seven percent of TV viewers report using their smartphone or tablet while watching TV. These usage trends should easily support the growth expectations in broadband metrics, and demand.

Data center providers, fiber transport companies, and to some extent wireless carriers, are capitalizing on the tidal wave of data and bandwidth growth. And insofar as they are able, traditional telcos and cable companies have focused on their fiber-based broadband assets, versus their copper-based legacy telephone/cable

networks. While larger telcos have been transitioning to the broadband business model for more than a decade, their smaller and more remote counterparts have not necessarily followed suit. However, the 2012 Telergee Benchmark Study showed that a good number of RLECs have shifted their attention to a broadband business model in recent years. This study revealed that RLECs with fewer than 3,000 access lines saw an increase in average operating margins of 5.3 percent in 2011, reversing the decline of the previous two years. A Telergee analyst mentioned that cost containment played a role in bolstering margins, but largely attributed the positive trend to the fact that many RLECs have made a concerted effort to expand beyond their traditional RLEC role to become a competitive broadband company in their service territory.

Among the rural communications companies that are thriving in today's highly uncertain financial and regulatory climate, it seems that the common element of success is finding a specific niche within the broadband world, and focusing all efforts to leverage the opportunities in that area. Accordingly, these providers are also poised to weather the regulatory and technological changes in the years to come. ■

This quarterly update is prepared by the Knowledge Exchange Division and covers the key industries served by CoBank, including the agricultural markets and the rural infrastructure industries.

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