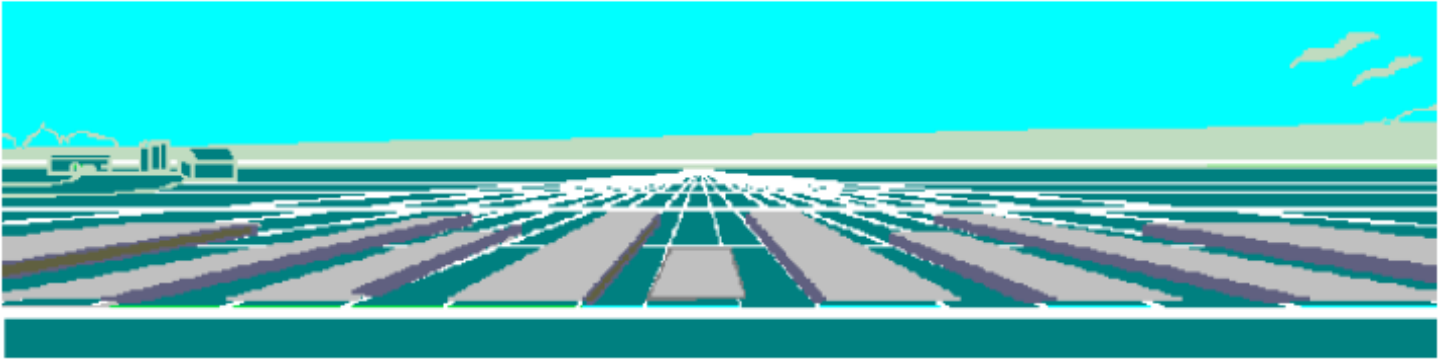


# Iowa Farm Outlook



December 3, 2007

Ames, Iowa

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## Has the Ethanol Boom Ended?

In the last two or three months, numerous articles in business and financial publications indicated the ethanol boom is about over. The rapid increase in corn processing for ethanol has been the major driving force pushing corn prices to levels not seen in years, and soybean prices to the highest level in 34 years. *However, just when many business writers were pronouncing an end to the rapid ethanol expansion, crude oil prices moved up by \$30 to \$35 per barrel. High crude oil prices have been the primary driving force behind the ethanol expansion. The increased crude oil prices since late October have significantly improved ethanol processing margins after a period of depressed returns in September and October. For some plants during early fall, returns were negative.* Downward pressure on returns vs. mid-2006 has come from the double-digit percentage expansion in ethanol production in the last few years. Most ethanol facilities are located in the Corn Belt and the Midwest E-10 ethanol market appears to be approaching the saturation point in that region. Infrastructure capacity for moving ethanol to the East and West Coasts and the South has not been able to expand as rapidly as production and has caused wholesale ethanol prices to trade at a large discount to gasoline.

Infrastructure includes ethanol train loading facilities, specialized rail cars, locomotives, train crews, siding in highly congested urban areas for unloading 100 to 110-car trains, storage tanks and splash-blending facilities, as well as retail facilities for E-85. While gasoline and diesel fuel are shipped by pipeline, current pipeline facilities are unsuitable for ethanol. A sharply increased Congressional mandate for annual ethanol production would provide further incentive to expand infrastructure capacities, along with the current \$0.51 cent per gallon blending credit and the large discount of wholesale ethanol prices to unleaded gasoline. Within 18 to 28 months, it seems likely that infrastructure capacity will begin to catch up with production capacity. In the meantime, periods of depressed ethanol processing margins appear likely – due to downward pressure on ethanol prices and upward pressure on corn prices.

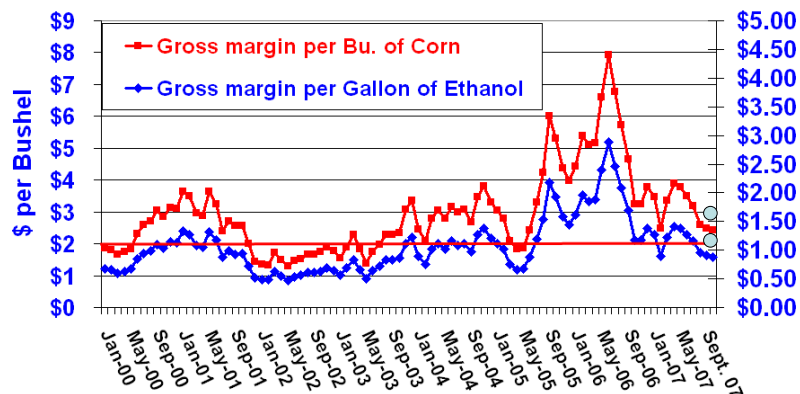
Another possible development that could take some pressure off infrastructure would be if government, auto industry, and EPA officials could agree to allow E-12 to E-15 or higher blends to be used in non-flex-fuel vehicles. Behind the scenes discussions on this topic reportedly are taking place, focusing on vehicle warranty and environmental issues. A break-through in this area could expand the Midwest ethanol market by as much as 20 to 50 percent.

### Has the expansion stopped?

Declining ethanol profit margins have slowed but not halted the expansion in the ethanol industry. Recent and historical gross processing margins (based on the cost of corn, value of ethanol and price of distillers grain) are shown in the chart below. The large dots show margins in mid-November. Gross margins were considerably lower than at present from late 2001 to early 2003. Current margins are well below the 2006

level, when halting of MTBE production created an immediate large premium market for ethanol to improve air quality in certain densely populated areas.

Figure 1. Iowa Gross Processing Margins for Ethanol, January 2000-Prelim. Sept.-Oct. 2007 \$ Per Gallon



The table below is based on information from DTN’s ethanol web site, <http://dtnag.com/dtnag/common/link.do?symbolicName=/ag/blogs/template1&blogHandle=ethanol>, in late July and in early November. It indicates that the numbers of operating plants and those under construction have increased modestly since late July despite disappointing returns. Although the time needed to build an ethanol plant has increased from a couple of years ago, nearly all of the plants under construction should be operating within two to two and one-half years. The increased number of plants in the planning stage since late July also is an indication that investor interest in ethanol plants has not completely halted.

### Changes in Ethanol Plants, 7/27 to 11/06/07 (From DTN)

#### Expansion hasn't stopped

	7/27/07	11/06/07
• U.S. Operating Plants	134	139
• U.S. Plants Under Const.	89	91
• Planned plants	329	343

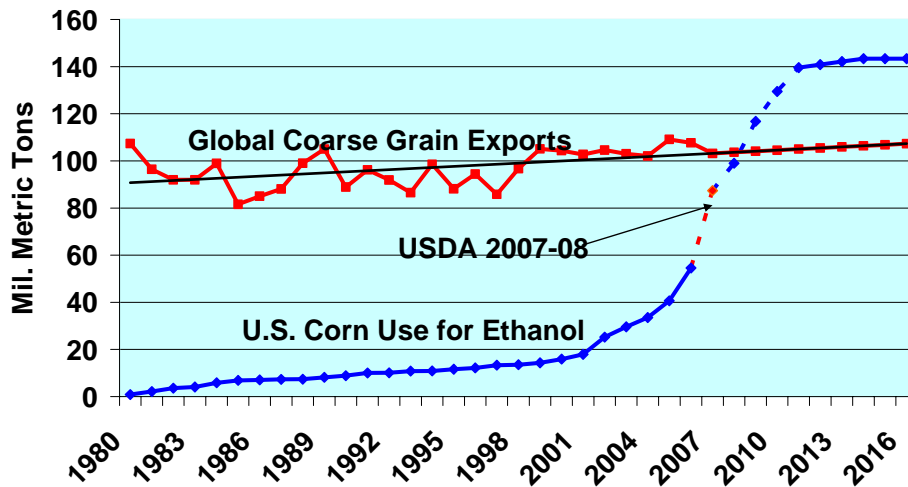
#### Ethanol & the global impact

In considering the market impact of corn-based ethanol and biodiesel, it is important to note that the U.S. is one of 41 countries that encourage biofuels. In transitioning global agriculture from primarily a producer of food and fiber to a producer of these two types of commodities plus fuel, major adjustments are being triggered across the entire agricultural sector. Areas of adjustment include plant breeding, biochemistry, crop rotations, crop input industries, grain handling and storage, transportation, processing, risk-management, as well as livestock production and the rest of the food sector. A major change is the need for more cropland, and more corn and oilseeds in crop rotations. *Here in the U.S., total corn acreage increased by 20% to the largest acreage since 1944, when soybeans were a minor crop. USDA estimates place 20 of the 25 percentage point increase in U.S. corn production this year to the extra acreage. Sources of the increased corn acreage were a 29% decrease in U.S. cotton plantings, a 16% decline in soybean acreage, and an 8% decline in non-durum spring wheat, along with declines in plantings of several minor crops. Action in the soybean market indicates this shift of acreage to corn is not sustainable for the longer term unless soybean*

*prices are much higher than in recent years.* Record-high wheat prices likely have shifted a modest number of acres from corn and/or soybeans to wheat along the eastern edge of the Great Plains as well as in the eastern Corn Belt, Missouri, and the South. It is not clear yet whether the cotton market will buy back some of last spring's lost acreage.

Figure 2 shows historical U.S. corn use for ethanol and global coarse grain (feed grains plus rye) exports, with projections to 2016. Global exports are a linear projection of the historical trend. U.S. corn use for ethanol is based on operating plants and those currently under construction, as reported by the Renewable Fuels Association, <http://www.ethanol.org/index.php?id=37&parentid=8#USEthanolFacilities>, and assuming that a small number (15 to 25) of the planned plants outside the Corn Belt will actually be built for corn-based ethanol. DTN's ethanol web site indicated in early November that 343 prospective ethanol plants in the U.S. were in some phase of planning but had not yet started construction. This rapid expansion in corn use for ethanol is setting the stage for large adjustments in all aspects of agriculture and for much greater volatility in grain and oilseed prices than in the last decade.

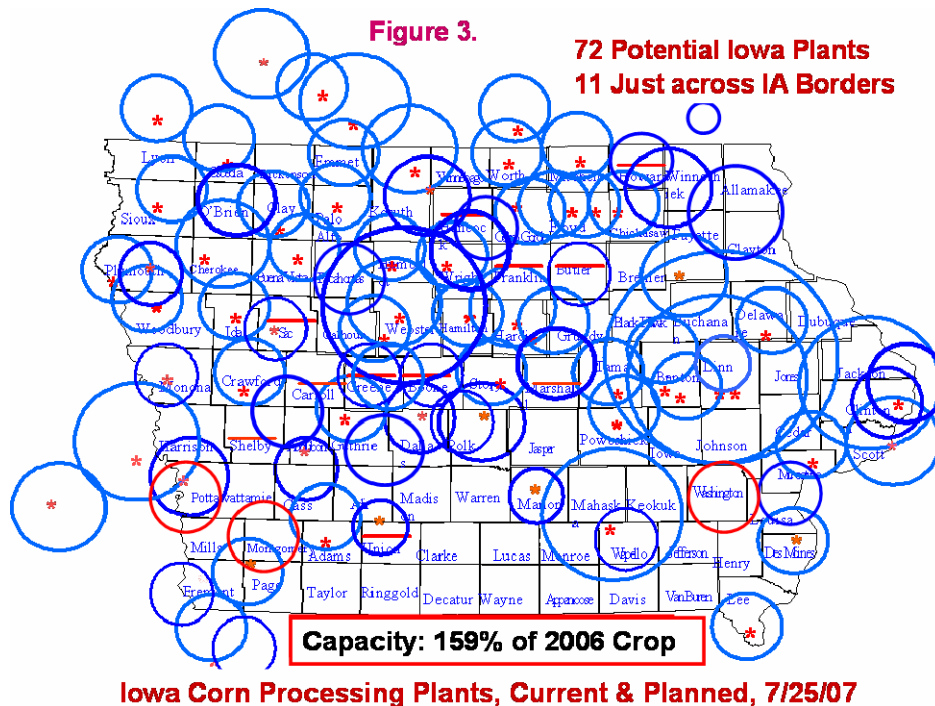
**Figure 2. Mil. Tons U.S. Corn Use for Fuel Ethanol & Global Coarse Grain Exports**



**Impacts on local prices and the basis in Iowa**

Figure 3 shows existing ethanol and food-industrial corn processing plants in Iowa, plants under construction, and planned plants. The circles represent approximate corn supply areas for the plants, assuming normal weather and crop yields. If all planned plants are built, the volume of corn needed just for the processing industry in the state will be 159% of the 2006 Iowa corn crop. That number does not include any requirements for corn for livestock feeding in Iowa, exports from the state for feeding and processing elsewhere in the U.S. or exports to foreign countries. We are aware of two planned plants that have been put on hold, with the possibility that they may never be built, and there may be others shown on the map that will not be built, depending on future economic returns for ethanol production.

Traditionally, Iowa has been a major corn exporting state. Some observers have concluded that Iowa will become a net corn importer within the next few years. However, a quick look at existing plants, as well as those under construction and being planned across the Corn Belt, suggests it will be difficult to find a sizeable source of corn for import.



### Changing price surface

Note that in 2001, a similar map of Iowa would have shown about eight circles. The over-lapping circles, as well as competition from demand for livestock feeding and exports, has substantially changed the corn price surface across Iowa. In years before 2002, the lowest corn prices in Iowa were in the northwest corner, with highest prices in east central and southeastern parts of the state. The lowest corn prices in the U.S. usually were in northwest Iowa and adjacent areas of South Dakota and Minnesota. This past summer, northwest Iowa prices for corn at some markets were higher than near-by Chicago futures prices, and at times were 18 to 22 cents per bushel above eastern Iowa river markets. Along with regional shifts in prices, the basis (cash-futures price differential) has become much more volatile. At times during the past 18 months, cash prices and forward contract prices have differed by as much as 20 to 22 cents per bushel on the same day for various grain buyers in a relatively small geographic area of the state. With a major drought in Iowa or important grain areas of the state, price variability could become even greater in the years ahead.

### Conclusions

The rapid expansion of the ethanol industry in Iowa is being driven to a large extent by much higher crude petroleum prices than in the past. Ethanol for motor fuel has been produced in Iowa for more than 30 years, but the movement of crude oil prices into the \$80 to \$99 per barrel range, vs. \$15 to \$25 in the late 1990s, has converted corn (and to a lesser extent soybeans) into an energy crop. With at least 75 U.S. ethanol plants currently under construction, the ethanol expansion has not yet ended. Just the plants currently being built in the U.S., operating at rated capacity, will need the equivalent of about 60 to 66 percent of global corn exports. Most, if not all of these plants, should be operating within three years, and many will be in production before that. In addition, some portion of the 343 plants being planned but not yet under construction will likely start construction within the next three years. This rapid expansion of the industry is likely to put downward pressure on ethanol processing margins and will bring substantial changes throughout U.S. and global agriculture.

### Wisner Retiring from ISU Extension Grain Marketing

It is with very mixed emotions that I close out a nearly 41 year career this week as extension grain marketing and outlook economist at ISU. Most of this time has been exciting, challenging, and very fulfilling professionally. I will miss the close contacts with farmers, agribusiness managers, county and area Extension

specialists, farm writers and broadcasters, and others. I plan to continue working part-time in grain marketing after a short break, and hope to be able to place greater emphasis on biofuels, but I will be less accessible to the public than in the past four decades. I expect this to be my last article in Iowa Farm Outlook.

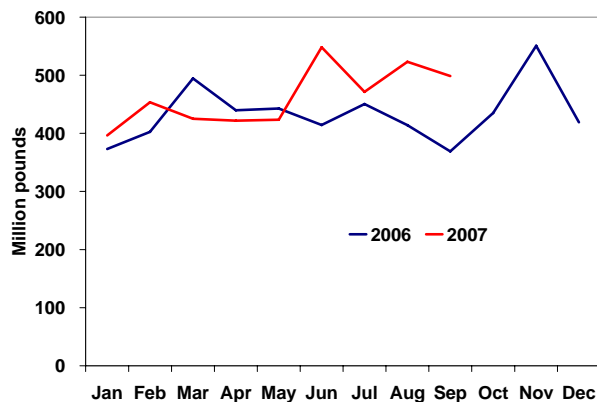
*Robert Wisner, Retired Extension Economist*

## Meat Exports and Livestock Imports

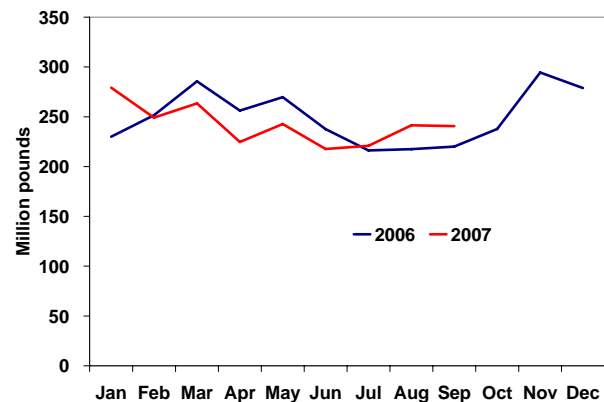
As we near the end of year, it may be advantageous to take a look at how US meat exports performed in the past year. In the first three quarters, exports of poultry and beef were up 14% and 26% respectively. Pork exports on the other hand have been keeping fairly close pace with last year's trend, and are down only 0.2% so far this year. Growth in meat export volumes has occurred for several reasons. First, foreign markets have growing economies, increasing wealth and willingness to pay for US food products. Second, the foreign consumer's opinion of beef safety is improving, which builds consumer preference. In the case of poultry, disease has hampered other countries' ability to produce the product. Finally, the exchange rate of the US dollar for other currencies has weakened considerably in the past year, and foreign markets have found US food products "cheaper" to purchase. Figure 1 compares the monthly export volumes of beef, pork and poultry in 2006 and 2007.

**Figure 1. Monthly Exports Volumes, 2006, Jan-Sept 2007**

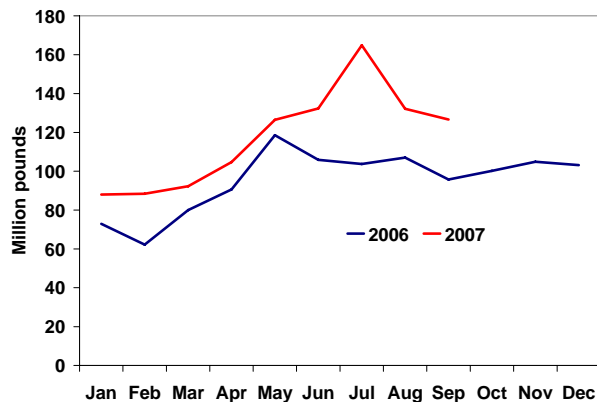
### US Poultry Export



### US Pork Exports



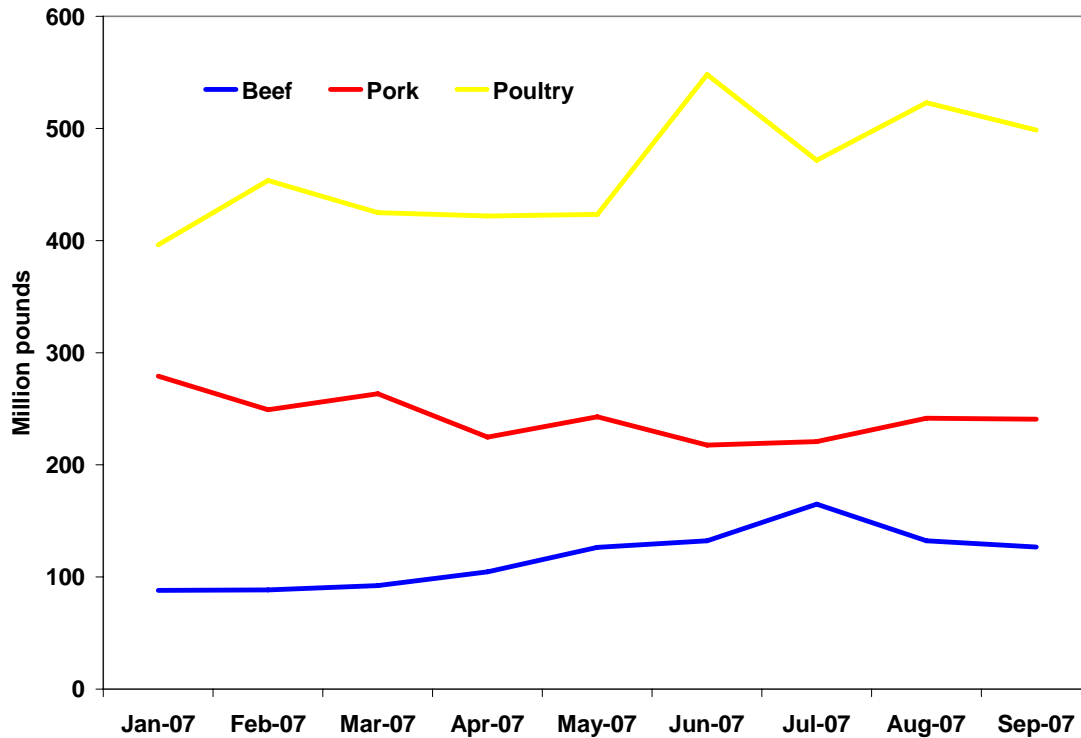
### US Beef Exports



Poultry remains by far the largest meat export product for the United States, surpassing both beef and pork combined. Figure 2 compares the three meat exports so far in 2007.

Although beef exports are growing, they are still a long way from recovering from the market and trade impact of BSE. Pork, on the other hand, appears to have reached a plateau in some regards, but there is hope that the growing wealth and populations in some Asian nations will open the door to new markets and additional exports. US pork production has set a new record this year and a new outlet for the additional supply would be appreciated by many in the industry.

**Figure 2. Monthly US Meat Exports, 2007**



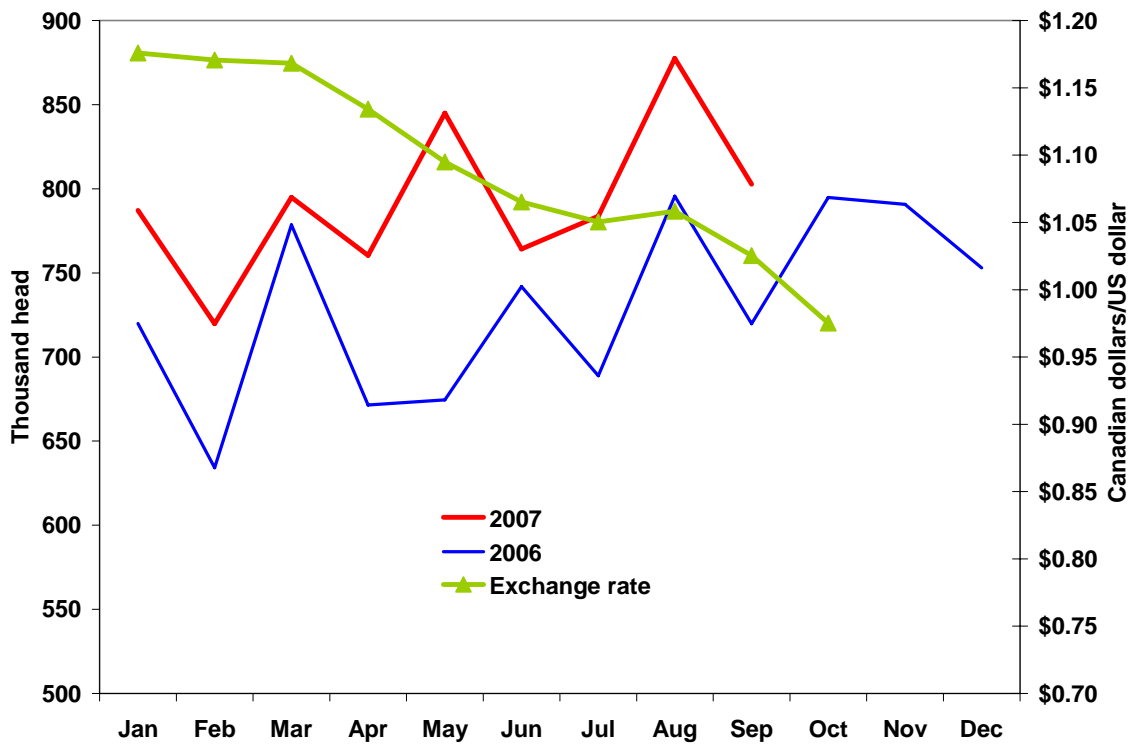
### Live hog and cattle imports

Now let us shift to US imports of live hogs and cattle. Live animal imports from our two bordering nations have been increasing, particularly the imports from Canada. Figure 3 is a graph showing how the monthly importation of hogs and pigs has increased from last year. There is a general increasing trend through both years.

Recently, for the first time in decades (perhaps ever), the Canadian dollar was worth more than the US dollar. Putting aside pride in the strength of one's national currency, how will such a dramatic change in exchange rate impact our trade situation? Figure 3 also tracks the monthly C\$/US\$ exchange rate, which has declined by nearly 15% in the past 8 months. Comparing the downward trend of the exchange rate with the upward trend of live hog imports, there is reason to contemplate the relation between the two. Assuming Canadian pig and hog prices were fairly constant, it has become more expensive for US firms to procure Canadian swine. In turn, if the US market price has not changed, Canadian producers will still view the US market as continuously softening. With this in mind, it would make sense for livestock imports to decline, but the opposite has happened. YTD imports of feeder pigs and market hogs are up 9% and 18%, respectively. From the perspective of a Canadian producer, a weakening US dollar would reduce the cost of feeding pigs in the US, which would increase feeder pig imports. The increased importation of market hogs is more of an enigma, with a year over year increase each month from January to September. Perhaps at that time there was

still enough advantage in the US market to draw in live hogs, or there was a considerable number hogs sold under a forward contract. If the US dollar continues to weaken, we may see adjustments in trade volumes.

**Figure3. Canadian Swine Imports, Exchange rates**



As for cattle imports from Canada, the trade rules now allow for cattle over 30 months of age to enter the US. Imports of both feeder and slaughter cattle have been trending upward since the border was reopened to young Canadian cattle in July of 2005. If the US beef cow herd inventory does decrease further, then we may experience an increased demand for foreign feeder cattle as feedlots search for the cheapest cattle they can find amid a decreasing domestic supply. YTD cattle imports from Canada and Mexico have been up 26% and 25%, respectively.

*Shane Ellis*