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Andrew Gottschalk

*RJ O'Brien & Associates*

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## **The Impacts of the U.S. Corn/Ethanol Policy on the U.S. Cattle Industry**

Andrew Gottschalk  
Sr Vice-President, R J O'Brien & Associates  
Owner, HedgersEdge.com, LLC

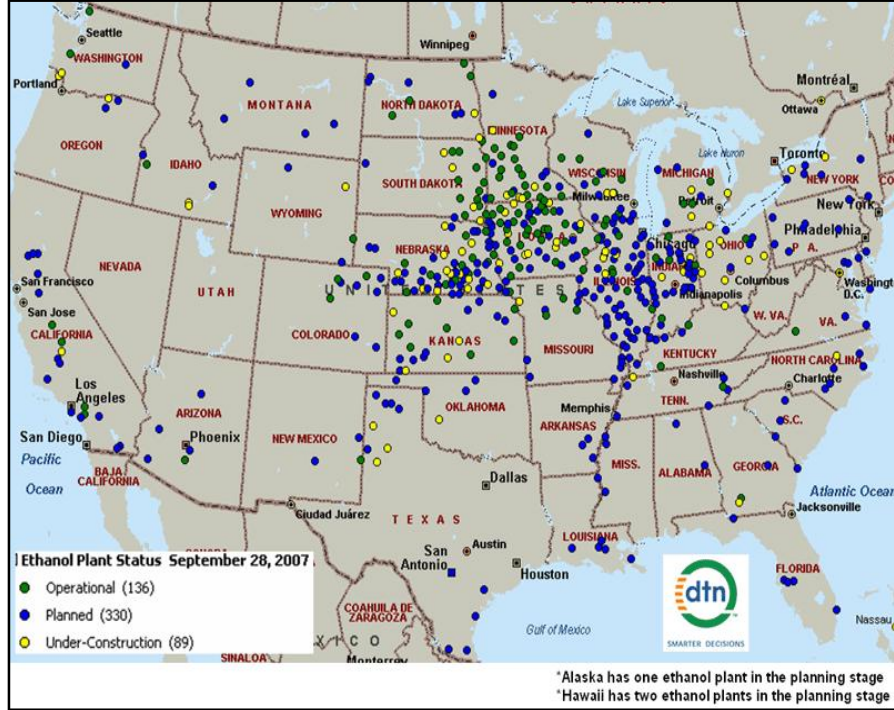
### **INTRODUCTION**

The oil shock in the early 1970's initiated government support for the ethanol industry. Initially, Federal support was primarily in the form of fuel tax exemptions that gave gasoline blenders incentives to blend ethanol with their gasoline blends. As world oil prices began to rise in 2002, governmental support for ethanol began to rise, as did popular demand and industry production. Simultaneously, fear grew amongst gasoline blenders regarding any liability for MTBE pollution. A growing number of studies have detected MTBE in ground water throughout the country. Even low levels of MTBE can make drinking water supplies undrinkable due to offensive taste and odor. This concern culminated in the Renewable Fuels Standard of 2005. EPA's Office of Water has concluded that available data is not adequate to estimate the potential health risks of MTBE in low levels of drinking water, but the data does support the conclusion that MTBE is a potential carcinogen in high doses. Recent work by the EPA and other researchers is expected to help determine more precisely the potential health effects from MTBE in drinking water.

The confluence of high oil prices, fuel tax credits, replacement of MTBE and passage of the Renewable Fuels Standard (RFS) encouraged a positive investment climate for new ethanol plants. The Renewable Fuels Standard was required by the Energy Act of 2005 (Section 1501). This requires growing renewable use from 4.0 billion gallons per year beginning in 2006 to 7.5 billion gallons by year 2012. Actual production is significantly ahead of the current mandate. As of September 28, 2007, there were 136 ethanol plants, with annual production capacity exceeding 7.0 billion gallons. An additional 89 plants were under construction. U.S. Ethanol production capacity is expanding rapidly and is currently expected to produce 12.9 billion gallons annually by 2009/10. Corn used for ethanol production is expected to expand from 2.125 billion bushels or 20.0% of annual corn production in 2006/07 to 4.3 billion bushels during the 2009/10 marketing year, approximately 30.0% of annual corn production at current acreage and yield levels. In the 2007 State of the Union Address, the president announced his goal to expand consumption of alternative fuels, inclusive of biofuels, to 35 billion gallons in 2017. Twenty percent of projected gasoline use is to be replaced by renewable or alternative fuels in ten years. Thus, the slogan "20.0% in 10" represents the likely guidance for ethanol and biofuel growth in the U.S.

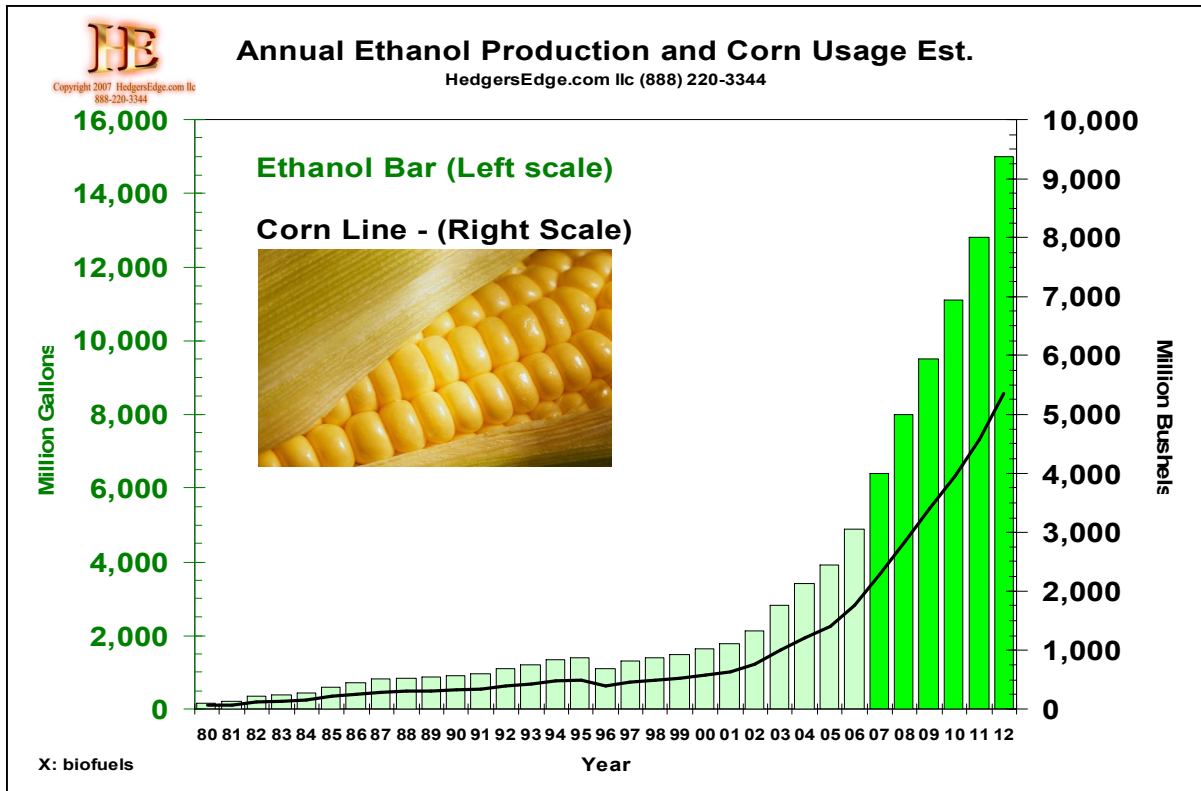
## OVERVIEW: THE IMPACTS OF THE U.S CORN/ETHANOL POLICY ON THE U.S. CATTLE INDUSTRY

Ethanol is currently being produced in 20 states, with approximately 85% of production capacity concentrated in an 7-state area that encompasses Iowa, Nebraska, Illinois, South Dakota, Minnesota, Indiana, and Wisconsin. Even with the new plants under construction and expansions outside the aforementioned region, these states will still produce approximately 77% of annual U. S. ethanol and DDG production.



The immediate impact of the Renewable Fuels mandate is the sharp increase in corn prices, resulting from the increased demand for corn for ethanol production. The additional demand for corn for ethanol has substantially increased the cost of corn to all users. Each sector of the livestock and poultry sector is negatively impacted in varying degrees by the new and higher price plateau for corn. The sector of our industry that is most susceptible to the adverse impact of a sharp increase in corn prices is the cow/calf sector.



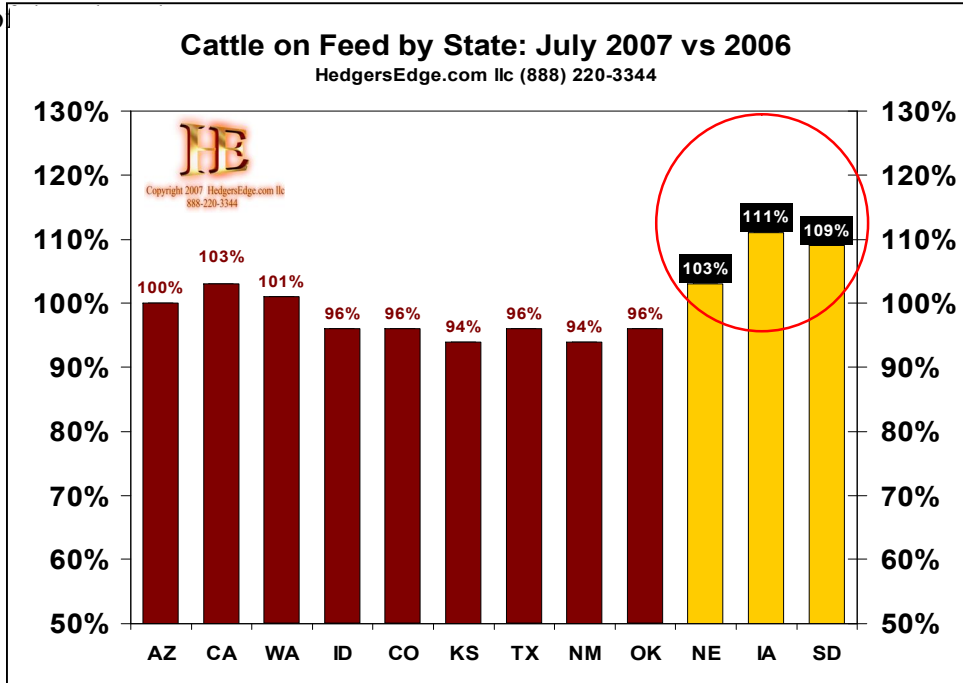


The price of fed cattle is ultimately determined by the amount of money consumers are willing to spend on the finished product—beef. Since there is a limit to consumer expenditures for beef, the price of fed cattle is determined by those spending limitations. Simply put, if the price of fed cattle cannot increase to offset the increase in feeding costs, the necessity to ensure a profit margin to the fed sector will force the price of other inputs to be adjusted lower. Thus, the higher price of corn or feed grain will ultimately limit the price level that the fed sector will pay for calves and feeders. This condition is currently being masked and minimized due to a historically low calf crop and the lack of any expansion in the U.S. cattle inventory.

Not all regions of the beef industry will be impacted to the same degree by the higher corn price plateau resulting from the increase in corn demand for ethanol. For the Midwest, a reversal of fortunes is underway, fostered by the advance in feed grain prices from ethanol demand and the availability of ethanol by-product referred to as DDG's. Each bushel of corn used for ethanol results in an increase in net total corn usage of 39 pounds. Thus, net corn prices have advanced as a result of this new demand. Each bushel of corn used for ethanol production produces 2.8 gallons of ethanol and 17-18 pounds of by-product, referred to as Distillers Dried Grain. The DDG produced can be fed to livestock in various percentages of the total dry ration. This by-product of ethanol production is a source of cheaper feed for Midwest feeders and livestock producers due to the concentration of ethanol plants in that region. This product, at 10% moisture, is generally valued at 85% of corn on a per ton basis. Due to transportation costs and spoilage concerns, most DDG's are fed within a sixty mile radius of the plant of origin.

The livestock industry in the Midwest is the direct beneficiary of the regional concentration of ethanol production. The cost of transportation and concerns regarding potential spoilage and unloading problems limit long distance shipments of DDG's. The immediate result of

industry's concentration in the Midwest is the attraction of more cattle feeding into that region. This is following decades of decline, as cheap feed grain prices and relatively cheap transportations costs had encouraged the growth of cattle feeding in the south plains.



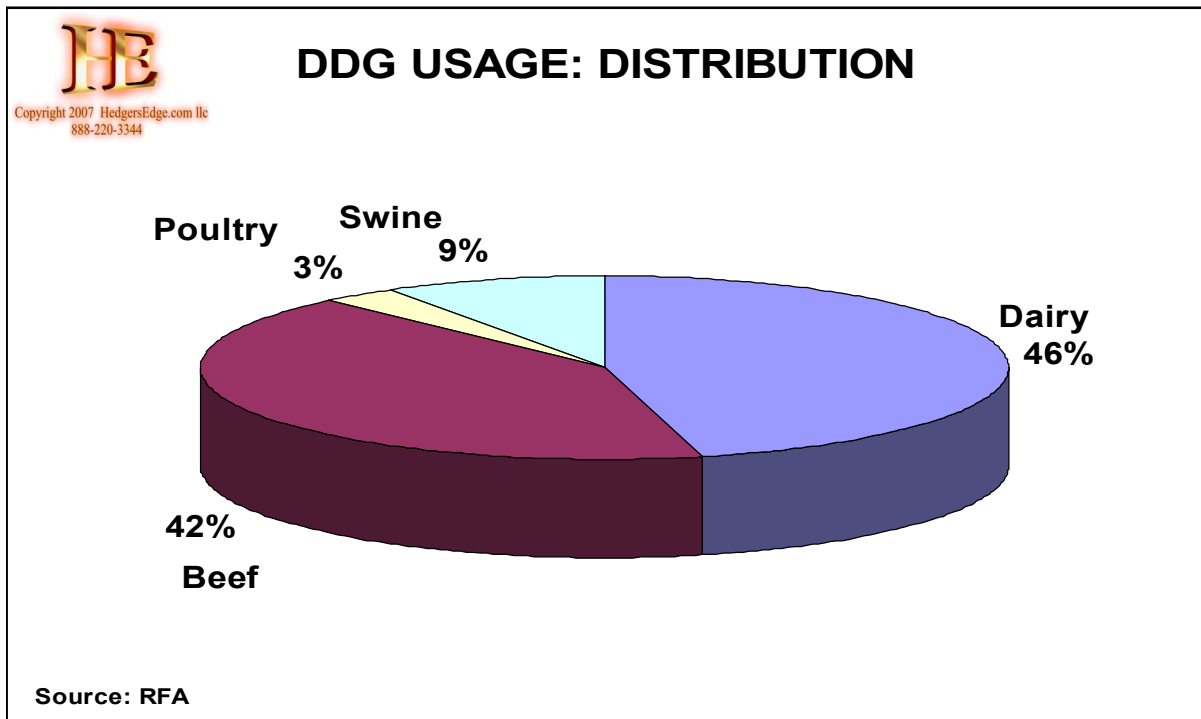
The local demand for corn for ethanol production and increased transportation costs have exacerbated the price differential of Midwest feeding gain costs versus the feed grain deficit area of the south plains. For the month of September, the Texas Panhandle corn cost is estimated at \$4.11

per bushel, while the cornbelt average price is estimated at \$3.37 per bushel, a difference of \$0.74 per bushel. A year ago this difference stood at only \$0.55 per bushel. This condition is allowing cornbelt cattle feeders a distinct advantage in feeding gain costs. This advantage can reduce feeding gain costs by as much as \$10.00/cwt.

	Current capacity (Mil Gal)	DDG's Equivalent Tons	Under construction (Mil Gal)	Total (Mil Gal)	DDG's Equivalent Tons
<b>Midwest</b>					
IA	1,706	5.17	1,740	3,451	10.48
NE	681	2.07	1,424	2,107	6.40
IL	894	2.70	291	1,188	3.61
MN	557	1.69	451	1,010	3.07
SD	555	1.68	425	982	2.98
IN	162	0.49	687	849	2.58
WI	230	0.70	282	513	1.56
<b>Total</b>	<b>4,785</b>	<b>14.50</b>	<b>5,300</b>	<b>10,100</b>	<b>30.66</b>
<b>S Plains</b>					
KS	211	0.64	295	507	1.54
TX	0	0.00	370	370	1.12
<b>Total</b>	<b>211</b>	<b>0.64</b>	<b>665</b>	<b>877</b>	<b>2.66</b>
<b>Total U.S. *</b>	<b>5,628</b>	<b>17.08</b>	<b>7,457</b>	<b>13,085</b>	<b>39.72</b>
<b>Midwest %</b>	<b>85.0%</b>	<b>84.9%</b>	<b>71.1%</b>	<b>77.2%</b>	<b>77.2%</b>
<b>S.Plains %</b>	<b>3.7%</b>	<b>3.7%</b>	<b>8.9%</b>	<b>6.7%</b>	<b>6.7%</b>

Distribution: Post Expansion →

For cattle expected to gain 500 pounds while on feed, the cost savings can approach \$50.00 per head. The advantage is increased by a factor of the percentage of DDG's fed (at the present time the maximum is generally 40% on a dry matter basis) and the beginning weight versus the finished weight of cattle on feed. The aforementioned advantage assumes that the cost of DDG's is less than the combined value of corn and soybean meal.



The fact is that higher percentages of DDG's can be fed to cattle as opposed to pigs and poultry. The use of DDG's as a feeding supplement helps to narrow the advantage that the competing meats have via feeding efficiency. We would expect to see additional cattle feeding expansion into the corn belt region during the next three to five years. Limitations to that expansion will be discussed at the end of this briefing.

In the short to intermediate term, cow-calf producers and stocker operations in the Midwest should benefit both directly and indirectly from the concentration of ethanol production in their region. Benefit is derived by the additional demand for feeders and calves that are put on feed as regional feedlot expansion occurs, allowing the potential for some of the feed gain cost advantage to be passed on via higher feeder and calf prices than would otherwise exist. Additional benefit is realized in reducing the feeding costs for cows. Budget estimates indicate Wet Distiller's Grain (WDG) can reduce daily winter feed costs for beef cowherds by 40% or more, when compared to conventional wintering programs. As a source of supplemental protein, Distillers Grain can also be fed at 10%-

15% of the ration on a dry matter basis in back-grounding operations.

<b>Midwest vs South Plains Cattle Inventory (000)</b>					
<b>January 2007</b>	<b>All</b>	<b>Beef</b>	<b>Dairy</b>	<b>Cattle</b>	<b>Feeders &amp;</b>
<b>Midwest</b>	<b>Cattle</b>	<b>Cows</b>	<b>Cows</b>	<b>On Feed</b>	<b>Calves</b>
<b>IA</b>	<b>3,950</b>	<b>1,070</b>	<b>210</b>	<b>872</b>	<b>1,448</b>
<b>NE</b>	<b>6,650</b>	<b>1,940</b>	<b>60</b>	<b>2,700</b>	<b>1,500</b>
<b>IL</b>	<b>1,340</b>	<b>427</b>	<b>103</b>	<b>215</b>	<b>453</b>
<b>MN</b>	<b>2,420</b>	<b>405</b>	<b>455</b>	<b>285</b>	<b>870</b>
<b>SD</b>	<b>3,700</b>	<b>1,669</b>	<b>81</b>	<b>420</b>	<b>1,105</b>
<b>IN</b>	<b>900</b>	<b>234</b>	<b>166</b>	<b>110</b>	<b>261</b>
<b>WI</b>	<b>3,400</b>	<b>265</b>	<b>1,245</b>	<b>240</b>	<b>890</b>
<b>Total</b>	<b>22,360</b>	<b>6,010</b>	<b>2,320</b>	<b>4,842</b>	<b>6,527</b>
<b>S Plains</b>					
<b>KS</b>	<b>6,400</b>	<b>1,500</b>	<b>110</b>	<b>2,620</b>	<b>1,780</b>
<b>TX</b>	<b>14,000</b>	<b>5,303</b>	<b>347</b>	<b>2,880</b>	<b>4,180</b>
<b>OK</b>	<b>5,250</b>	<b>2,000</b>	<b>70</b>	<b>355</b>	<b>2,265</b>
<b>CO</b>	<b>2,700</b>	<b>725</b>	<b>115</b>	<b>1,130</b>	<b>510</b>
<b>Total</b>	<b>28,350</b>	<b>9,528</b>	<b>642</b>	<b>6,985</b>	<b>8,735</b>
<b>Total U.S.</b>	<b>97,003</b>	<b>32,894</b>	<b>9,129</b>	<b>14,269</b>	<b>28,333</b>
<b>Midwest %</b>	<b>23.1%</b>	<b>18.3%</b>	<b>25.4%</b>	<b>33.9%</b>	<b>23.0%</b>
<b>S.Plains %</b>	<b>29.2%</b>	<b>29.0%</b>	<b>7.0%</b>	<b>49.0%</b>	<b>30.8%</b>

The accompanying table provides a regional composition and distribution of cattle inventories and cattle on feed as of January 1, 2007. The comparison is between the two regions most impacted by the expansion and growth of the ethanol industry.

How much of a price premium can be commanded by the Midwest feeder and calf producers? For this analysis, the Midwest is defined by the states of Iowa, Nebraska, Illinois, South Dakota, Minnesota, Indiana, and Wisconsin. The answer lies, as usual, with the efficiency of the marketplace. All other factors being equal, the price gain can equal, but should not exceed, the advantage of the regional net reduction in feed gain cost plus or minus the transportation cost differential of importing feeders and calves from regions outside the Midwest. With an inventory of only 6.572 million head of feeders and calves in the Midwest region and 4.842 million head of cattle on feed, basis the January 1, 2007 inventory report, the Midwest has a shortfall in feedlot replacement cattle. The underlying assumption to this regional inventory short fall is that the regional cattle on feed total will be turned over a minimum of 1.5 times per year requiring at least 7.263 million head of feeders and calves to satisfy feedlot demand at current capacity and utilization rates. This represents a minimum regional shortfall of feeders and calves approximating 691,000 head. Additional feedlot expansion in the Midwest will only



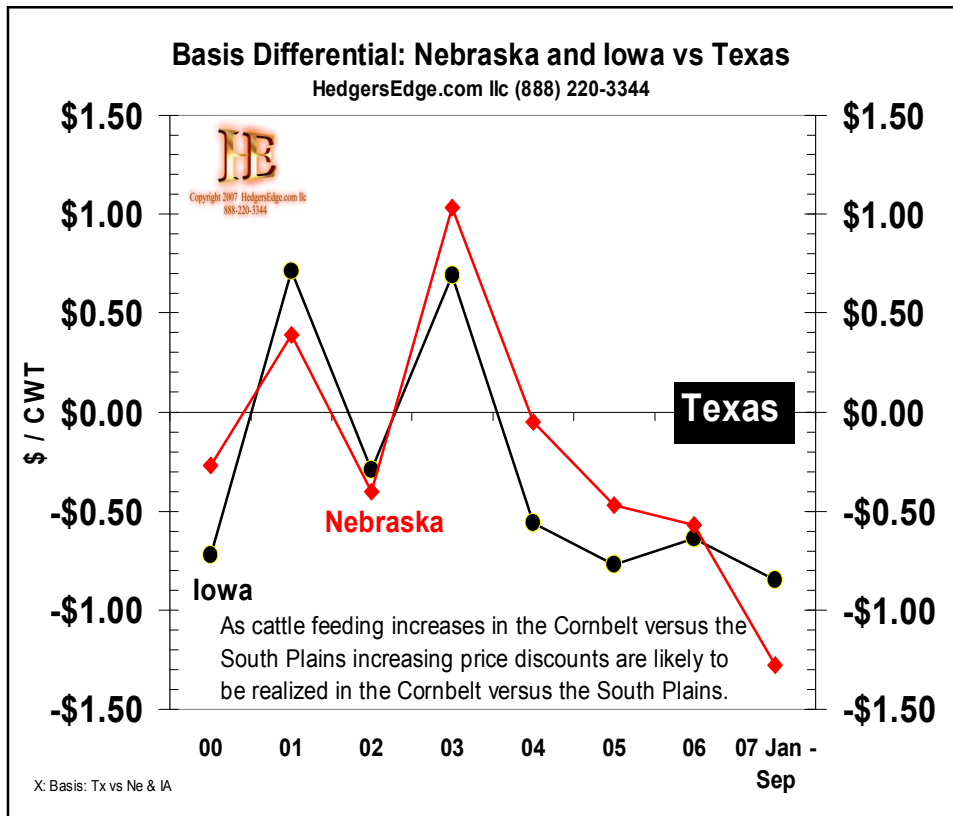
exacerbate the current regional feeder and calf shortfall, lending additional price support to this regional market.

What limitation exists to the expansion of additional cattle feeding in the Midwest? The primary limitation is the lack of fed cattle daily harvest capacity in this region. This can best be examined with the accompanying table, depicting current capacity levels of existing plants. If exclusively fed cattle harvest capacity were to be analyzed, the differences in regional capacity would be magnified.

<b>Packer Daily Harvest Capacity</b>			
(000)	Midwest		South Plains
IA	2,650	KS	28,200
ILL	3,400	TX	26,470
SD	550	CO	9,700
MN	4,500		
WI	6,100		
NE	26,050		
<b>TOTAL</b>	<b>43,250</b>		<b>64,370</b>

The differential in slaughter capacity is already being realized through an ongoing shift in regional cash price differentials for fed cattle. It was as recent as 2003 that Iowa and Nebraska fed cattle

prices traded at a premium to Texas fed cattle prices. The price premium commanded by Iowa and Nebraska fed cattle has eroded from a \$0.50-\$1.00/cwt premium to a 2007 YTD \$0.75-\$1.30/cwt discount. The premium price now being garnered by fed cattle in the South Plains versus the Midwest will continue to shift toward the South Plains. This trend will be maximized only when the price premium in the South Plains exceeds the cost of transport of fed





cattle from the Midwest into the South Plains.

In summary, the higher cost of feed resulting from the expanded demand for corn for ethanol production will have an overall negative bias to the cattle industry in total. Herd expansion is likely to be limited with the high price of corn shifting feedlot demand to more yearling weights. If the current ethanol mandates are expanded competition of available lands will only intensify.

As a firm believer in capitalism and the efficiency of the marketplace, one should anticipate that these price differentials will eventually reduce some of the gain currently being realized by cattle producers in the Midwest. One primary factor already evident is the gradual erosion in the price premium paid for fed cattle in the Midwest.

From a longer term perspective, structural requirements are likely to lead to more ethanol plant expansion closer to the end-use, as it is cheaper to ship and store grain than ethanol. While such action will temper some of the advantage garnered presently by the Midwest or corn belt cattle producers, it will not negate totally the advantage which they enjoy today. Public perception of and governmental support programs for ethanol will not, in all likelihood, concern themselves with any impact upon the cattle industry. These impacts will nonetheless not be invisible not unsubstantial.

