

California Grains Foundation

“Evaluating Marketing Opportunities for
California Corn Producers”

**Funded by a grant from the USDA Rural Cooperative Development Grant
Center for Cooperatives 2003-2004 Sub-Award Proposal**

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EXECUTIVE SUMMARY

Current Situation: California corn production continues to drop perceptibly the last 10 years. California producers are finding that they are increasingly unable to compete in the local feed market even though their corn is fresher and locally produced. The rail shipments of corn into the California feed and milk shed industries continues to grow each year placing ever increasing pressure on California based corn growers.

This study examines first the World, North American (U.S., Mexico and Canada) and U.S. production, import and export of corn for production, uses and trends. Next it looks at production trends in all of the major corn producing states.

It then analyzes the California corn production trends over the last ten years and identifies the comparison of production trends in the major corn producing states that are shipping into the California feed markets.

The report takes an in-depth look at the rail movements into California studying the rail rates, their relative profitability, and the movement data from the waybill samples to ascertain what quantities, and at what freight rates the Great Plains producers and the railroads are moving the Great Plains based corn into the California feed markets.

To develop a general understanding of the rail transportation system, this paper also develops the rail routes for the Great Plains corn movements into California.

Finally the paper analyzes if and what possible strategies and/or marketing opportunities are available or strategies or opportunities that could be developed to preserve California corn production and enhance it in the future.

Issues Examined in this Study:

This study looks at: the production of corn for grain in the various major corn producing states.

Issues:

1. California corn growers continue to see their domestic market erode each year
2. California corn growers are being systematically forced out of their traditional markets by corn brought into the area via rail.
3. The common thought in California is that if the local growers are having problems competing with local truck hauls, the railroads must be offering great Plains corn producers very low rail rates
4. What are the factors that hinder California corn producers from competing with the corn coming in from the Great Plains?
5. What is the outlook for continuing decline of California based corn in the feed supply markets in California?
6. Are there marketing strategies that could be developed for California corn producers to offset the rising corn shipments from the Great Plains?
7. Does the quality of California corn offer possible alternative marketing strategies in new market development?

Underlying Factors:

- California corn is being systematically displaced from its long traditional market in the California feed industry
- Increased corn from the Great Plains is pouring into the San Joaquin valley at ever increasing levels
- Local corn producers do not have on-farm storage developed to allow for year round supply to local markets

Conclusions and Outlook:

The railed-in corn into the California feed market in the Tulare and Stockton areas is running about four times the amount of corn that is now produced locally. The local California corn production has fallen by over 50% since 1997 and continues to decline.

The increasing corn movement by the railroads into the California market will probably continue. The estimates gathered through looking at way bill sample data show the amount of corn being railed into San Joaquin valley of California is over 4 times larger than domestic corn production. The railroads are moving large quantities (four times local production) into the area at rail rates that are probably below their full cost but at levels that are well above their variable costs thus providing a contribution to railroad overhead. The cash flow of corn rail

movements is very large – estimated to be over \$400,000,000/year for the Union Pacific Railroad system wide.

Due to the large amounts of corn available in the market place, the California locally grown corn while fresher, is being forced to compete with the railed-in corn. The California corn producers are unable to supply a year round consistent supply to local feeders due to the lack of commercial or on-farm storage.

California corn producers need to look at ways to differentiate their corn supply with the local feeders and customers (freshness, phyto-sanitary issues, locale, and local industries) and also look to development of infrastructure to be able to provide consistent year-round supply to be able to maintain and increase their marketing opportunities.

SECTION I: INTRODUCTION

1.1 Purpose

The California Corn producers continue to suffer loss of market share to imported corn, by rail from Iowa and Nebraska, and that corn is being heavily utilized in the local feed industries.

Objective I

Prepare a detailed comparison of U.S. and California corn supplies and transportation logistics and freight rates from Iowa and Nebraska sources to California destinations.

Objective II

Assess future implications and possibilities of developing local strategies including product differentiation to re-establish CA to some of its local markets.

1.2 Background

The California corn growing industry continues to see a downward trend on local production of corn for feed which started in 1997 as the UP, after completion of its merger with the Southern Pacific Railroad, increased shipments of Great Plains corn into the Tulare and Sacramento Valley areas. It is estimated that the railroad is shipping 3-4 times the volume of corn that is produced locally in the area. Most of the rail movements of corn into the California are coming off the UP railroad and they are originating in Iowa and Nebraska.

This study looks individually at World, North America (Canada, U.S. and Mexico), U.S. specifically at production, imports and exports looking for trends or non-trends that might impact the movement of corn into California.

Next the study looks corn production in all of the major corn producing states over the last 10 years looking for trends in production. A number of these states were affected by dry and non-ideal growing conditions in the late 1990's and into the early 2000's.

Lastly, the study looks at California corn production trends and compares those trends to known rail movements out of Iowa, Nebraska, and Minnesota into the California feed markets.

It is apparent from the trend analysis that as Iowa corn production continues to increase and simultaneously the rail movements into California continue to rise it

will continue to place increasing pressure on California corn growers ability to market locally produced corn in the California feed corn market.

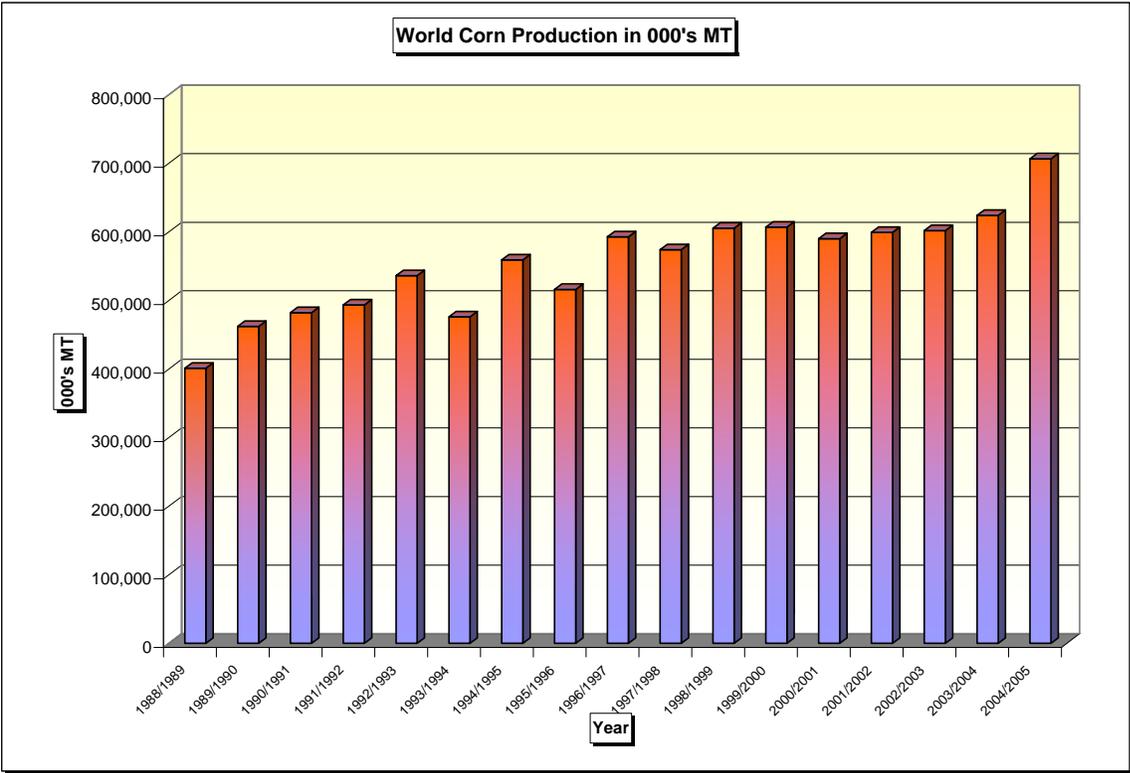
Finally the study attempts to develop local issues with corn growers that impact both their selling of into the local California market and develop factors that tend to inhibit their ability to market into the California market. The study then seeks out issues that might be utilized to formulate future marketing strategies to help offset the inbound corn by rail.

SECTION II: World, North American and U.S. Corn Production

2.1 World Corn Production

World Corn Production, Consumption and Stocks

World Corn Production continues to increase and has seen production rise from just under 400,000,000 MT in 1988 to just under 700,000,000 MT in 2004. There was a spike in production in the 2004/2005 crop year and a corresponding increase in corn stocks. The U.S. continues to lead the world production with just under 40% of the world production. On the consumption side of the ledger, the United States consumes about 30-32% of the world consumption year over year.



Production	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005
Argentina	17,200	15,400	14,700	15,500	15,000	19,500
Brazil	31,641	41,536	35,501	44,500	42,000	35,500
Canada	9,161	6,827	8,389	8,999	9,600	8,836

China	128,086	106,000	114,088	121,300	115,830	128,000
Egypt	5,678	5,636	6,160	6,000	5,740	5,780
Hungary	0	0	0	0	0	0
India	11,470	12,068	13,510	11,100	14,720	13,600
Indonesia	6,200	5,900	6,000	6,100	6,350	6,500
Mexico	19,240	17,917	20,400	19,280	21,800	22,000
Philippines	4,449	4,508	4,505	4,430	4,845	5,100
Romania	10,500	4,800	7,000	7,300	7,020	12,000
South Africa	11,455	8,040	10,050	9,675	7,500	12,000
Thailand	3,900	4,700	4,500	4,250	4,100	4,000
Ukraine	1,737	3,848	3,641	4,180	6,850	8,800
Others	106,457	100,957	109,238	111,378	106,123	124,760
United States	239,549	251,854	241,377	227,767	256,278	299,917
TOTAL	606,723	589,991	599,059	601,759	623,756	706,293
Consumption	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005
Brazil	33,500	34,500	35,000	37,500	38,600	39,100
Canada	9055	10,123	11,965	12,576	11,238	10,800
China	117,300	120,240	123,100	125,900	128,400	131,500
Egypt	10,200	10,900	11,200	10,900	9500	10,200
Hungary	0	0	0	0	0	0
India	11,350	11,950	13,050	12000	13200	13600
Indonesia	7300	7300	7300	7500	7350	7500
Japan	16,317	16,200	16,300	16,800	16,900	16,800

Korea, South	1750	2038	1845	1711	1882	1930
Malaysia	2,353	2420	2440	2250	2300	2450
Mexico	23,660	24,000	23,600	24,700	26,400	27,600
Romania	9,500	6250	6800	7,200	7300	9400
Russia	1845	1900	1350	1600	2550	3650
Serbia	6091	3119	4850	4850	4450	5300
South Africa	8854	8705	8446	8520	8677	8950
Others	147,622	150,469	152,543	150,999	156,259	166,728
United States	192,496	198,102	200,941	200,748	211,723	222,515
TOTAL	599,193	608,216	620,730	625,754	646,729	678,023
Ending Stocks	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005
Brazil	1667	2765	1637	4798	4108	1308
China	123,799	102,372	84,788	64,973	44,852	35,452
South Africa	2041	490	1943	2443	2956	4156
Others	21,350	18,853	20,188	23,780	23,895	30,803
United States	43,628	48,240	40,551	27,603	24,337	56,271
TOTAL	192,485	172,720	149,107	123,597	100,148	127,990

[Source: U.S. Department of Agriculture, Foreign Agricultural Service](#)

Based on local marketing years in thousands of metric tons.

World Corn Production

U.S. Corn at a Glance, 2004

Acres Planted
80.9 million

Acres Harvested
73.6 million

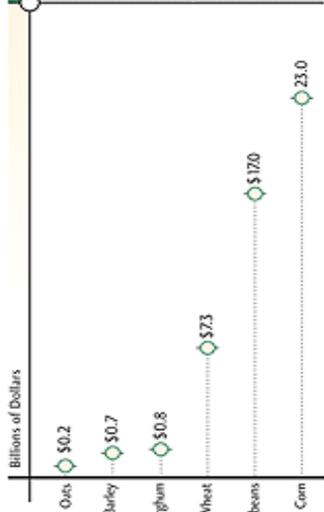
Production
11.8 billion bushels

Average Yield
160.4 bushels per acre

Corn Crop Value
\$23.0 billion

Average Price
\$1.95 per bushel

U.S. Select Crop Value, 2004



Source: USDA, NASS, Crop Production, 2004 Summary, Jan. 2005
USDA, ERS, Outlook Report, Jan. 2005

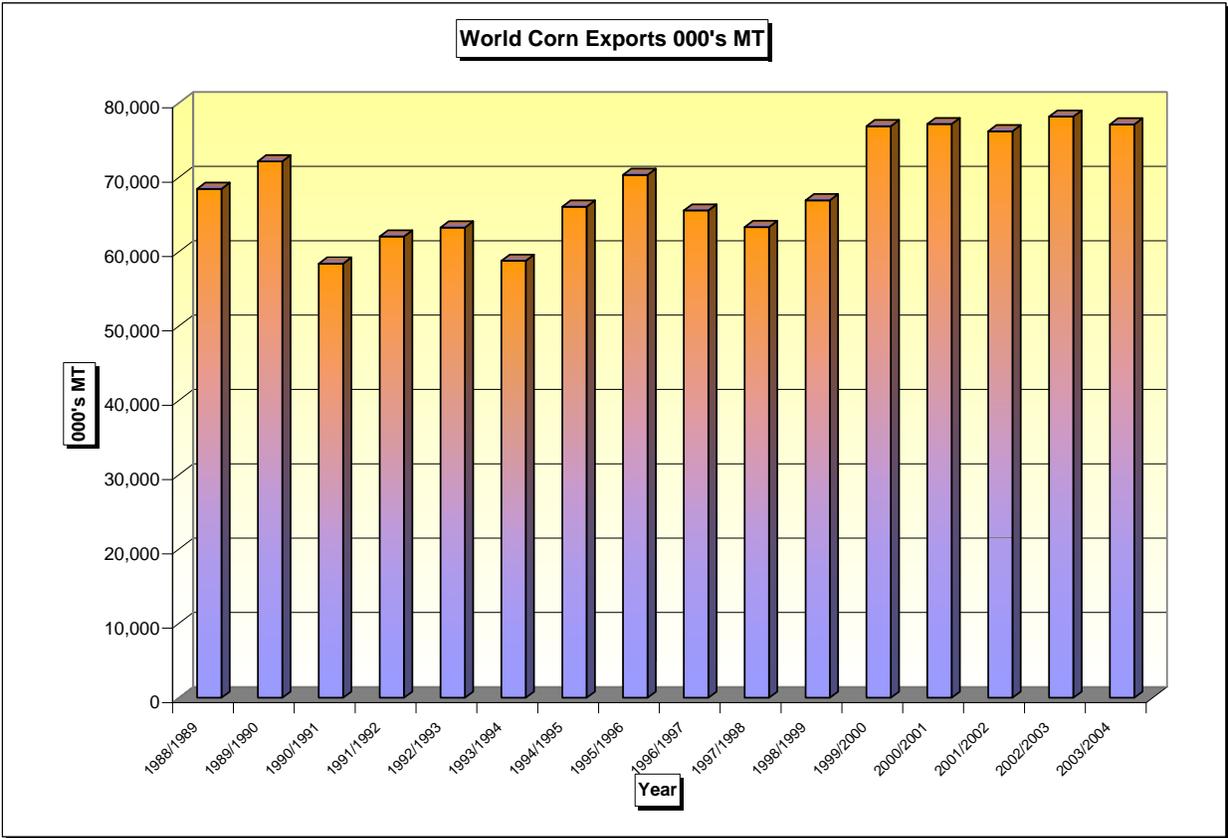
U.S. Corn Production by State, 2004

State	Acres Planted 1000s	Acres Harvested for Grain 1000s	Average Yield Bushels/Acre	Total Production 1000 Bushels
Alabama	220	195	123	23,985
Arizona	53	27	180	4,860
Arkansas	320	305	140	42,700
California	540	150	175	26,250
Colorado	1,200	1,040	135	140,400
Connecticut	31	-	-	-
Delaware	160	153	152	23,256
Florida	70	32	90	2,880
Georgia	335	280	130	36,400
Idaho	230	75	170	12,750
Illinois	11,750	11,600	180	2,088,000
Indiana	5,700	5,530	168	929,040
Iowa	12,700	12,400	181	2,244,400
Kansas	3,100	2,880	150	432,000
Kentucky	1,210	1,140	152	173,280
Louisiana	420	410	135	55,350
Maine	28	-	-	-
Maryland	490	425	153	65,025
Massachusetts	20	-	-	-
Michigan	2,200	1,920	134	252,280
Minnesota	7,500	7,050	159	1,120,950
Mississippi	460	440	136	59,840
Missouri	2,950	2,880	162	466,560
Montana	70	15	143	2,145
Nebraska	8,250	7,950	166	1,319,700
Nevada	4	-	-	-
New Hampshire	15	-	-	-
New Jersey	86	72	143	10,296
New Mexico	125	58	180	10,440
New York	980	500	122	61,000
North Carolina	820	740	117	86,580
North Dakota	1,800	1,150	105	120,750
Ohio	3,350	3,110	158	491,380
Oklahoma	250	200	150	30,000
Oregon	58	28	170	4,760
Pennsylvania	1,400	980	140	137,200
Rhode Island	2	-	-	-
South Carolina	315	295	100	29,500
South Dakota	4,650	4,150	130	539,500
Tennessee	680	615	140	86,100
Texas	1,830	1,680	139	233,520
Utah	55	12	155	1,860
Vermont	95	-	-	-
Virginia	500	360	145	52,200
Washington	170	105	200	21,000
West Virginia	48	29	131	3,799
Wisconsin	3,600	2,600	136	353,600
Wyoming	90	51	131	6,681
Total U.S.	80,930	73,632	160	11,807,217

Source: USDA, NASS, Crop Production, 2004 Summary, January 2005

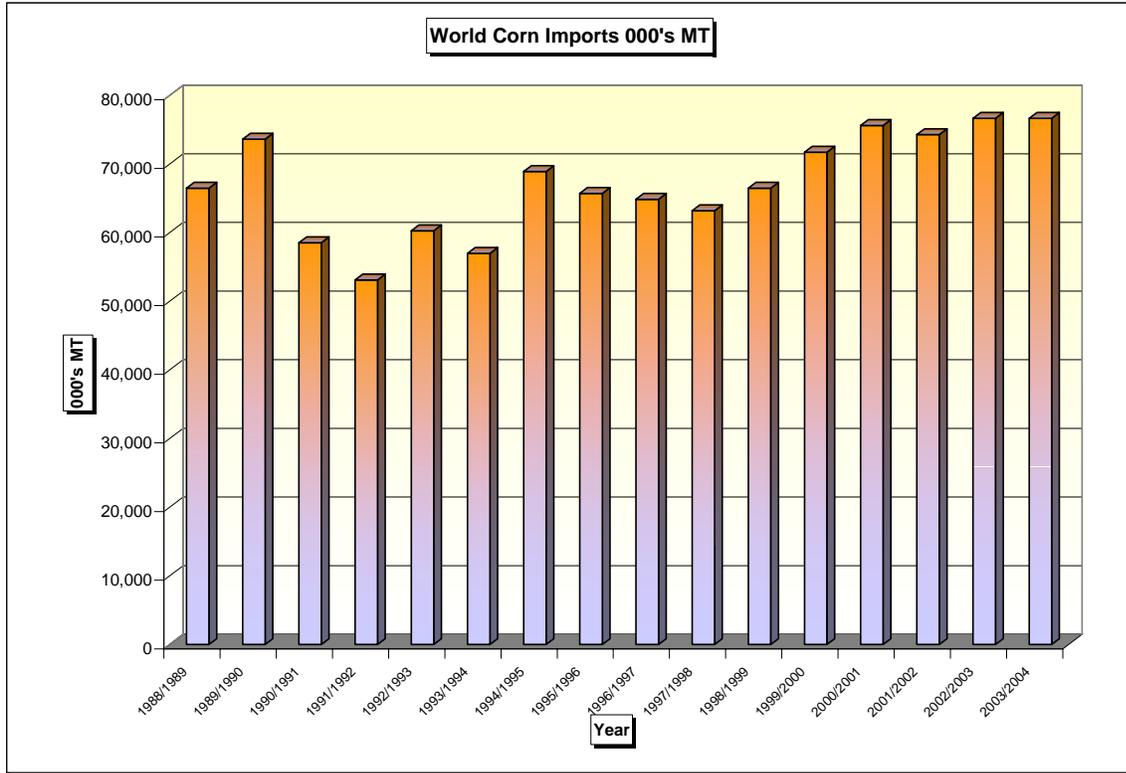
2.2 World Corn Exports

World Corn exports continue, for the last five crop years, to remain in the mid 70,000,000 MT/year range. This is in line with the relatively stable world consumption over the last five years. Roughly 11-13% of the world production is exported annually by all countries.



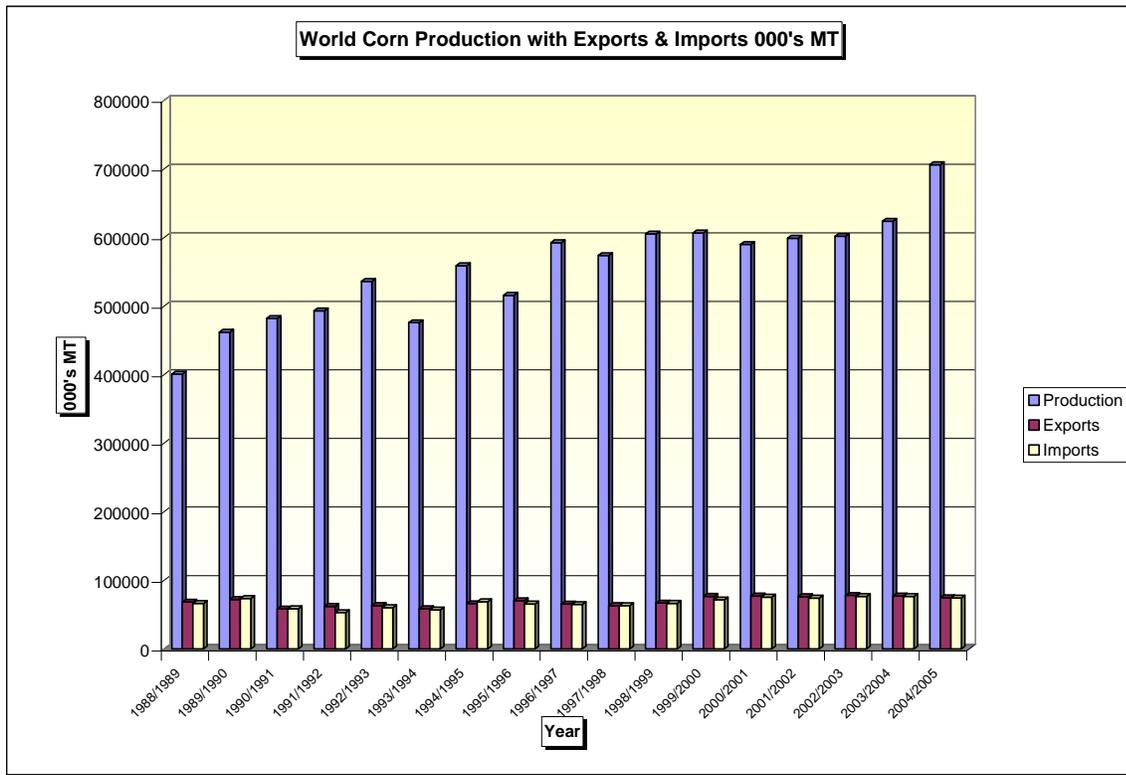
2.3 World Corn Imports

World Corn imports also continue, for the last five years, to remain in the mid 70,000,000 MT/year range, again about 10-13% of the world production numbers.



In fact when the two charts on superimposed on each other, imports and exports provide a mirror effect which is to be expected as storage increases and decreases tend to equalize over time when production and demand remain somewhat constant.

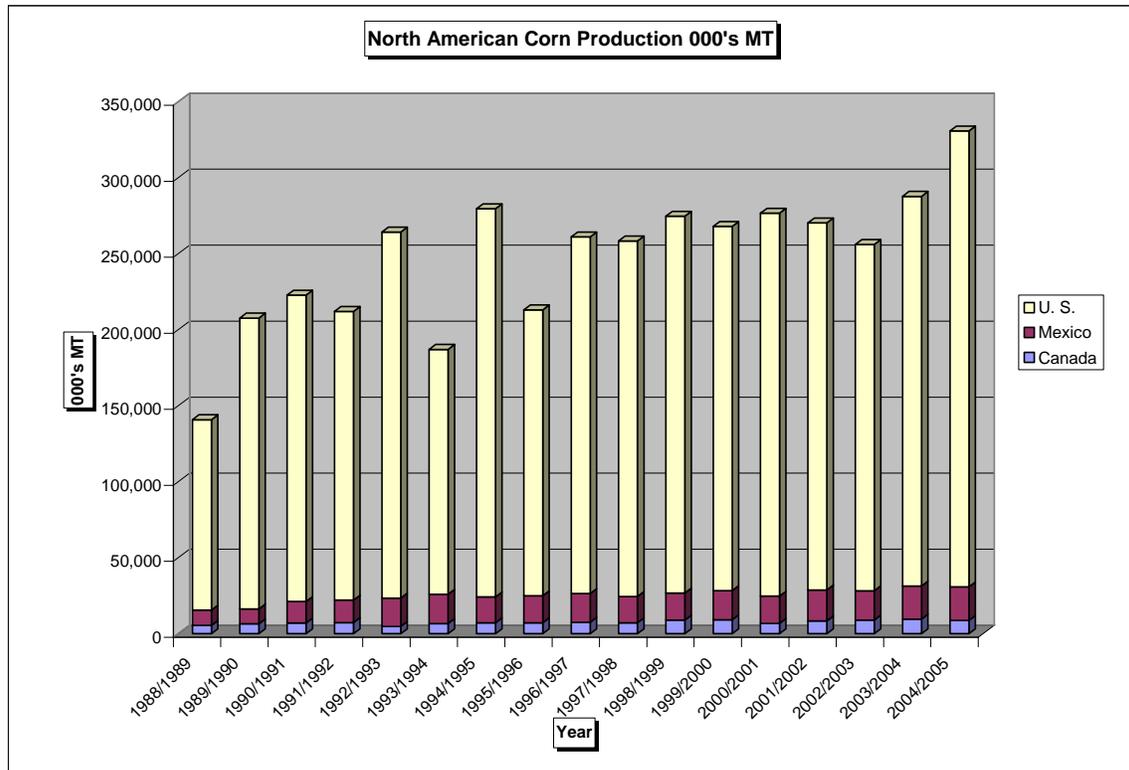
The graph below superimposes on a single graph shows the World production, imports and exports. The graph illustrates the relative significance of world production compared to the total world import and export levels.



Source: USDA/FAS Grain: World Markets & Trade

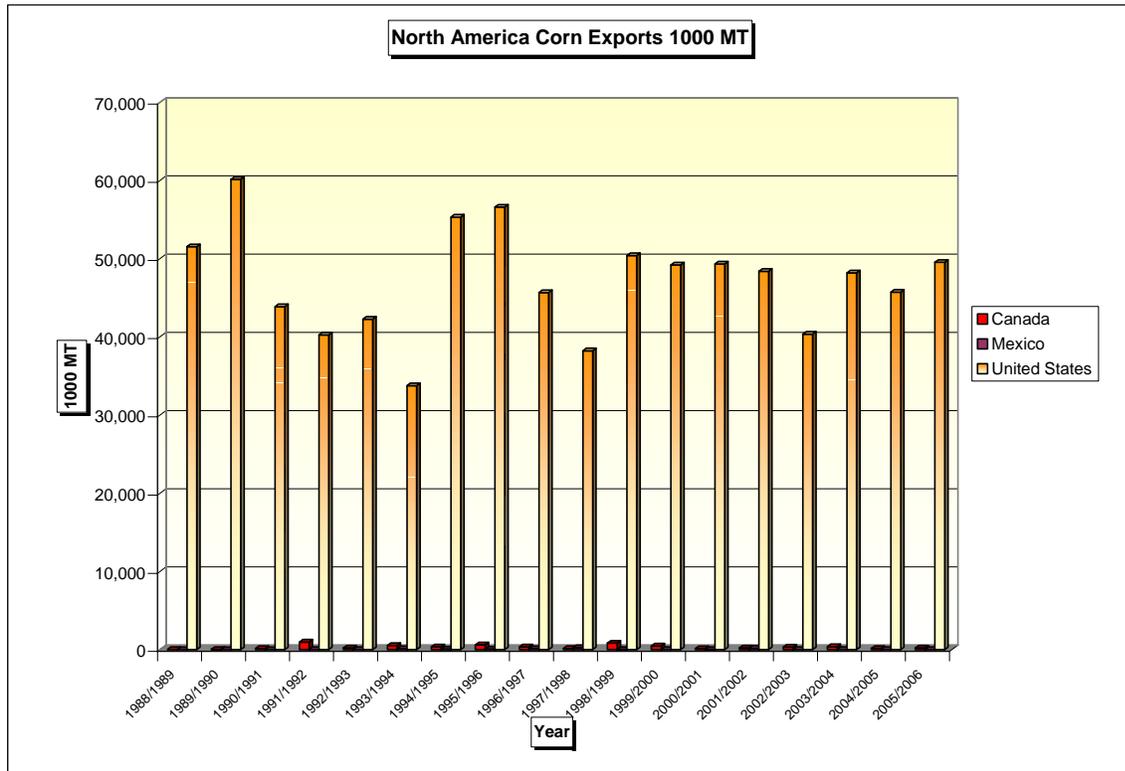
2.4 North American Production

North American production during the early 2000's, tended to be fairly stable but showed marked growth in 2003-2004 and 2004-2005 crop years. The major increases occurred in the U.S. not in Mexico and Canada. North America production of corn is dominated by the U.S. The 2004 record crop in grains and soybeans and increased exports contributed to a rising demand for rail car movements which came on top of a recovering U.S. economy for which there was likewise an increasing demand for rail services.



2.5 North American Exports

The exporting of corn by North American countries is dominated by the United States exports. Again the U.S. saw near record grain production and rising exports in the year 2004. The corn exports jumped dramatically in 2004.



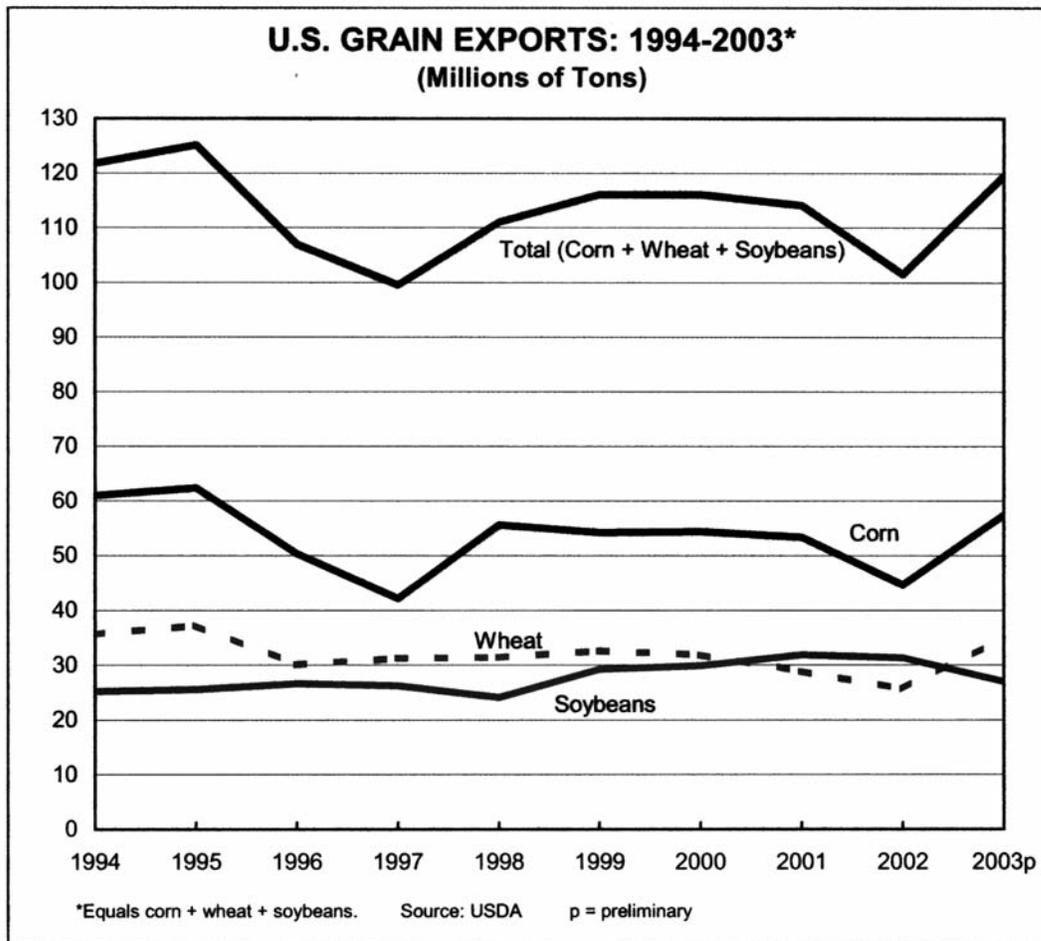
Source: USDA

When all grains are looked at, corn accounted for about 20% of all grains exported from the U.S. over the last 10 years. Corn exports continued to be strong in the last 3 years with increasing numbers since 2000.

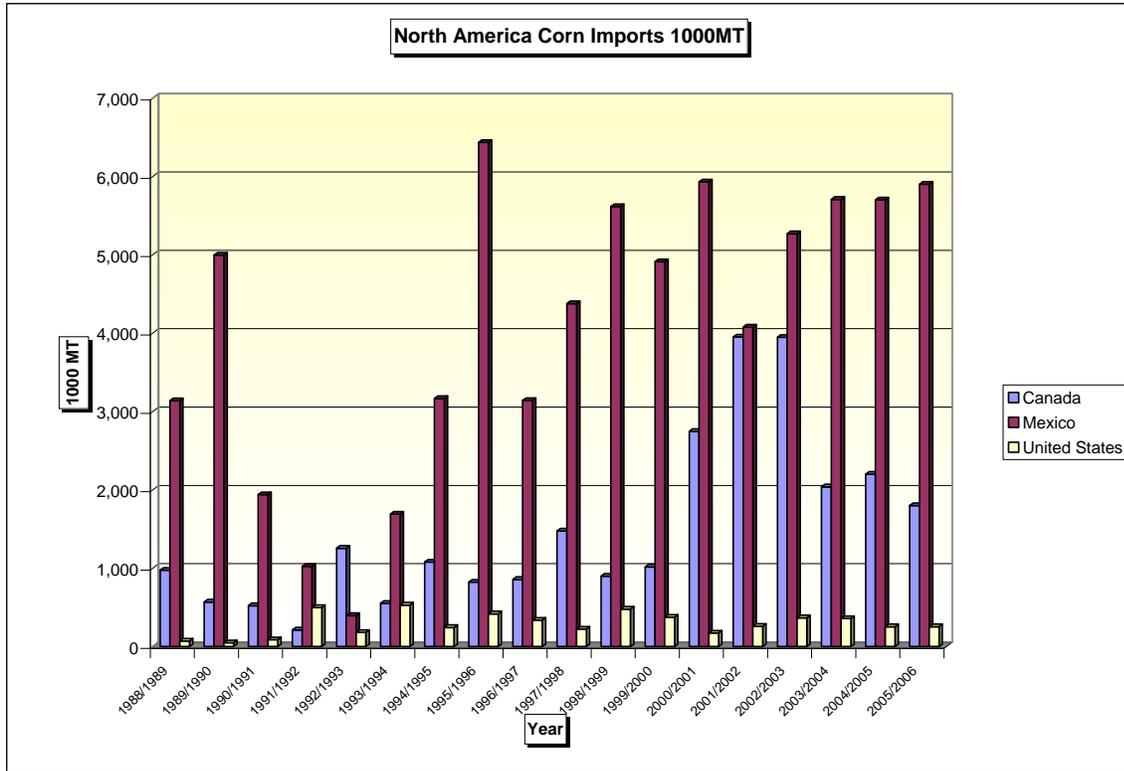
U.S. GRAIN EXPORTS: 1994-2003*

	Exports (Millions of Tons)				Exports as % of U.S. Production			
	Corn	Wheat	Soybeans	Total*	Corn	Wheat	Soybeans	Total*
1994/95	61.0	35.6	25.2	121.8	22%	51%	33%	29%
1995/96	62.4	37.2	25.5	125.2	30%	57%	39%	37%
1996/97	50.3	30.0	26.6	107.0	19%	44%	37%	27%
1997/98	42.1	31.2	26.2	99.5	16%	42%	32%	24%
1998/99	55.6	31.4	24.1	111.1	20%	41%	29%	26%
1999/00	54.2	32.6	29.3	116.1	21%	47%	37%	28%
2000/01	54.3	31.9	29.9	116.1	20%	48%	36%	27%
2001/02	53.3	28.9	31.9	114.1	20%	49%	37%	28%
2002/03	44.6	25.6	31.4	101.6	18%	53%	38%	27%
2003/04p	57.4	35.1	27.0	119.5	20%	50%	37%	28%

*Equals corn + wheat + soybeans p = preliminary Source: USDA



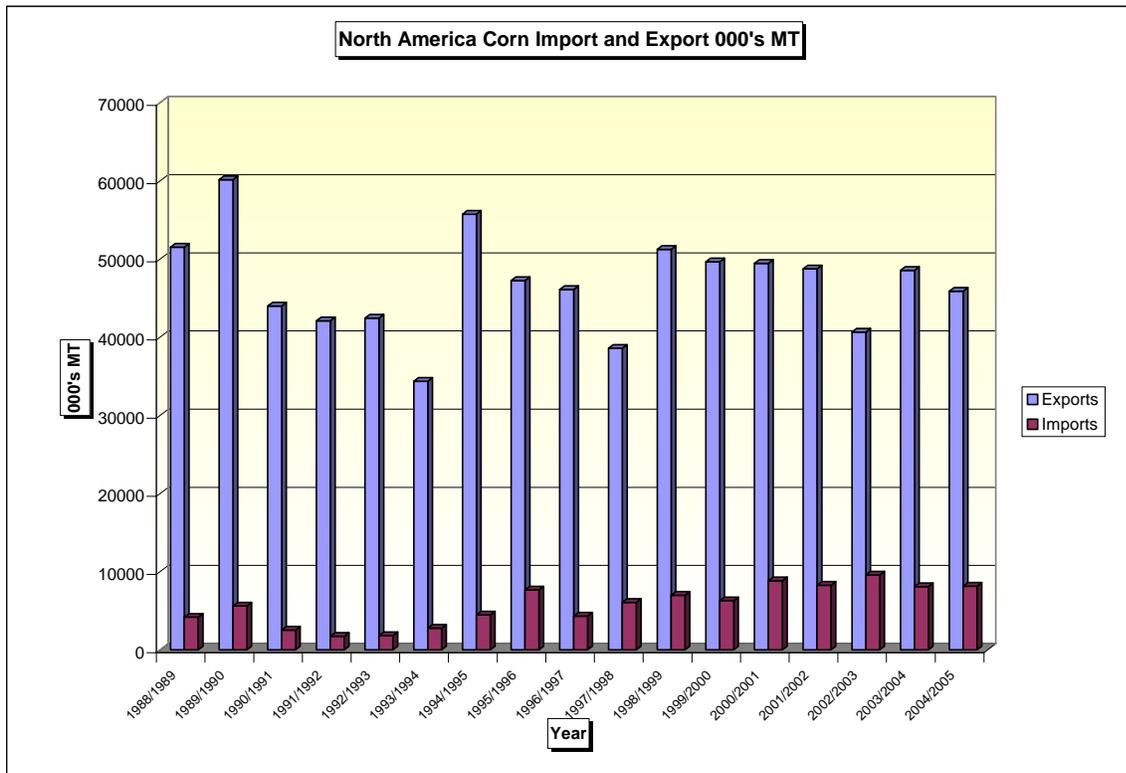
2.6 North American Imports



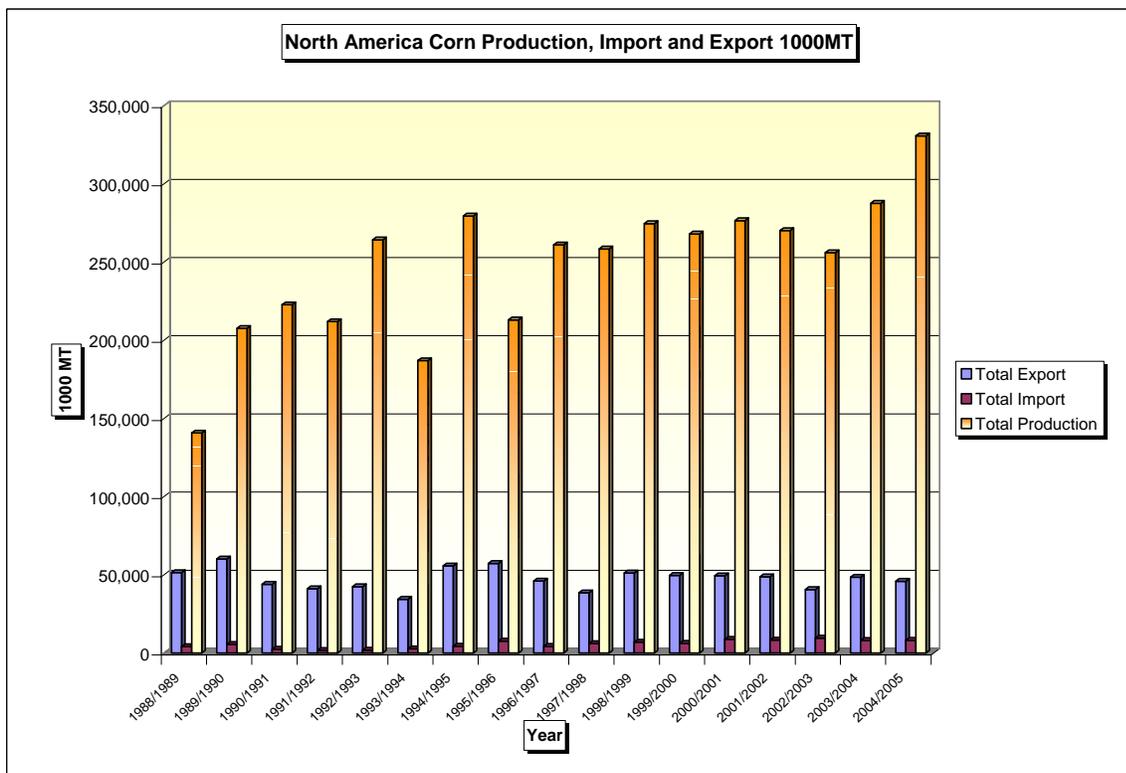
Corn importation in North America occurs primarily in Canada and Mexico. The imports into Mexico show a rising pattern since 2002 and consistent importation levels above 5,000,000 MT for the last 10 years, although the levels will vary year to year.

North American Imports & Exports

Putting the imports and exports together shows the rising levels of imports as a percentage of exports over the last 6-7 years by the three North American countries. As production continues to reach peak levels in the United States, it is expected that there will be increasing exports from the U.S.



As production continues to reach peak levels in the United States, it is expected that exports will remain at least at current or increased levels, as shown in the graph below.

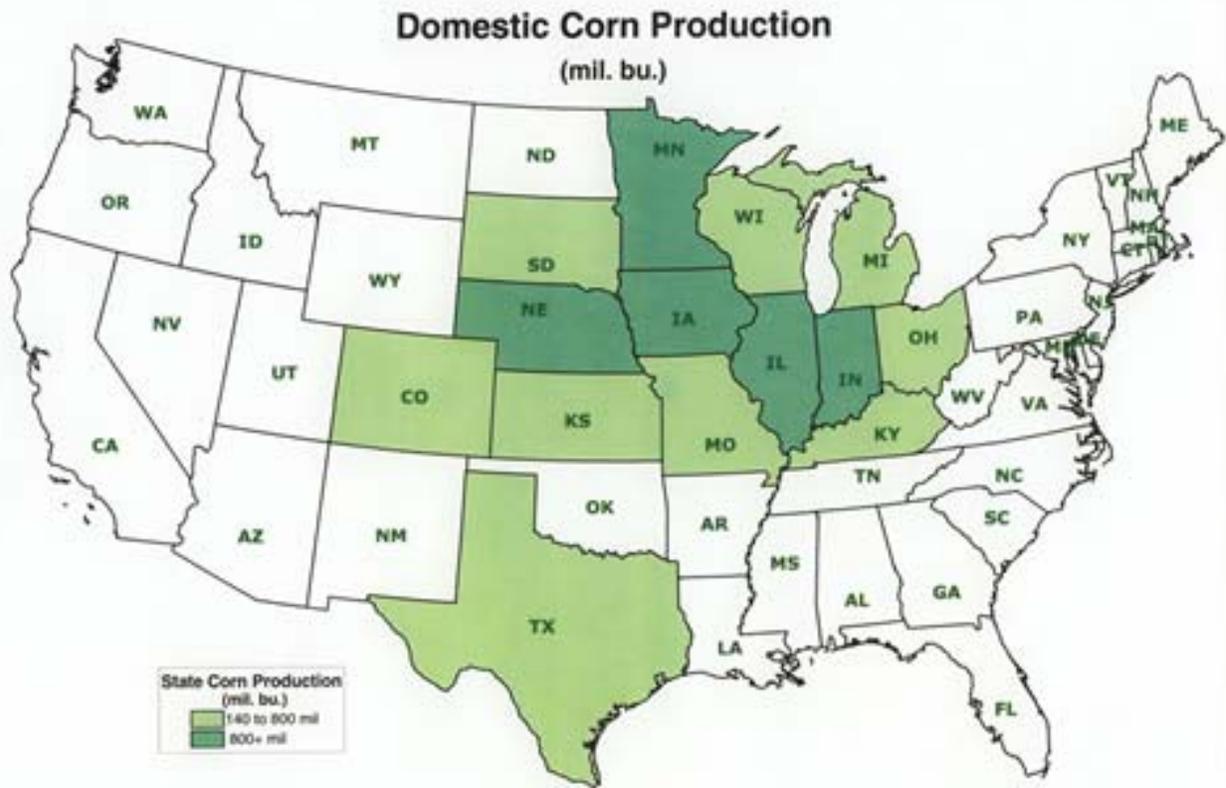


2.7 U.S. Corn Production

2003-2004 Crop Year U.S. Corn Use By Segment (bushels)

Feed/Residual	5.8 billion (56.8%)
Exports	1.9 billion (18.6%)
Ethanol (fuel)	1.2 billion (11.7%)
High Fructose Corn Syrup	530 million (5.1%)
Corn Starch	271 million (2.6%)
Corn Sweeteners	228 million (2.2%)
Cereal/Other	187 million (1.8%)
Beverage Alcohol	132 million (1.2%)

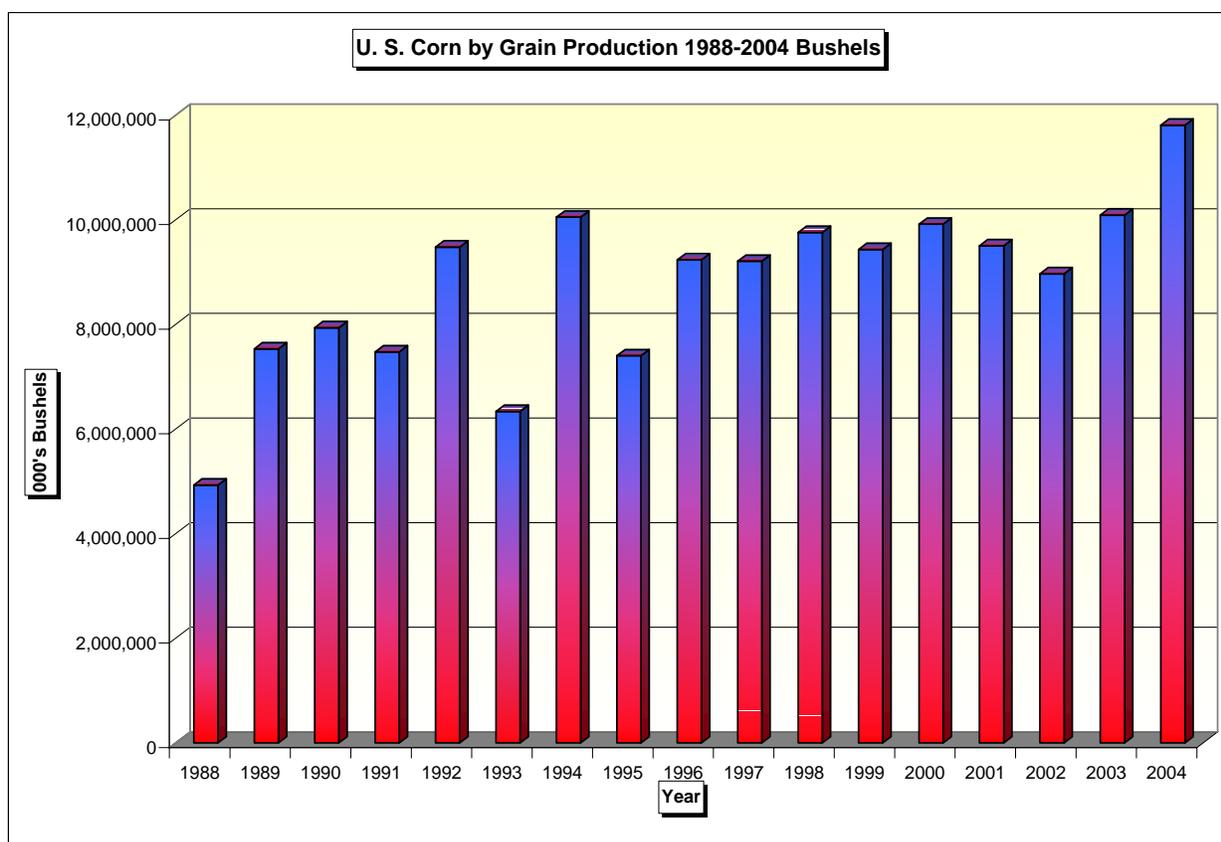
Feed/residual use of U.S. produced corn by far dominates the market use of U.S. corn production. The rising ethanol blend and E85 fuel production will continue to impact the use numbers on corn in the near future.



Source: USDA

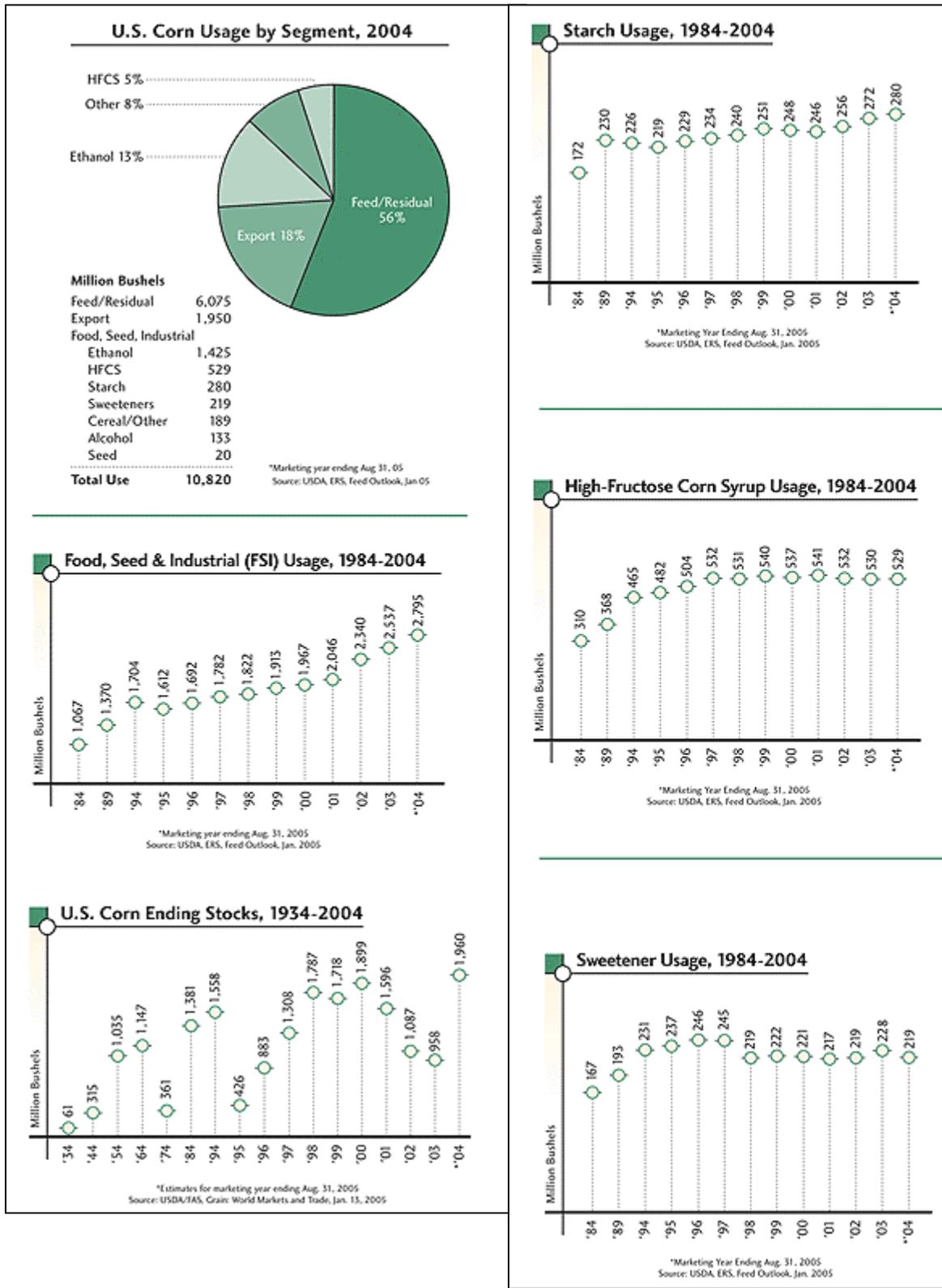
State	Production 2002 (Bushels)	Production 1997 (Bushels)
California	25,500,000	45,050,000
Colorado	112,300,000	143,080,000
Illinois	1,496,000,000	1,425,450,000
Indiana	631,620,000	701,500,000
Iowa	1,963,500,000	1,642,200,000
Minnesota	1,051,900,000	851,400,000
Nebraska	940,800,000	1,135,200,000
North Dakota	114,425,000	58,410,000
Ohio	252,560,000	475,700,000
South Dakota	304,000,000	326,400,000
Texas	205,660,000	241,500,000
Wisconsin	391,500,000	402,600,000

Source: USDA



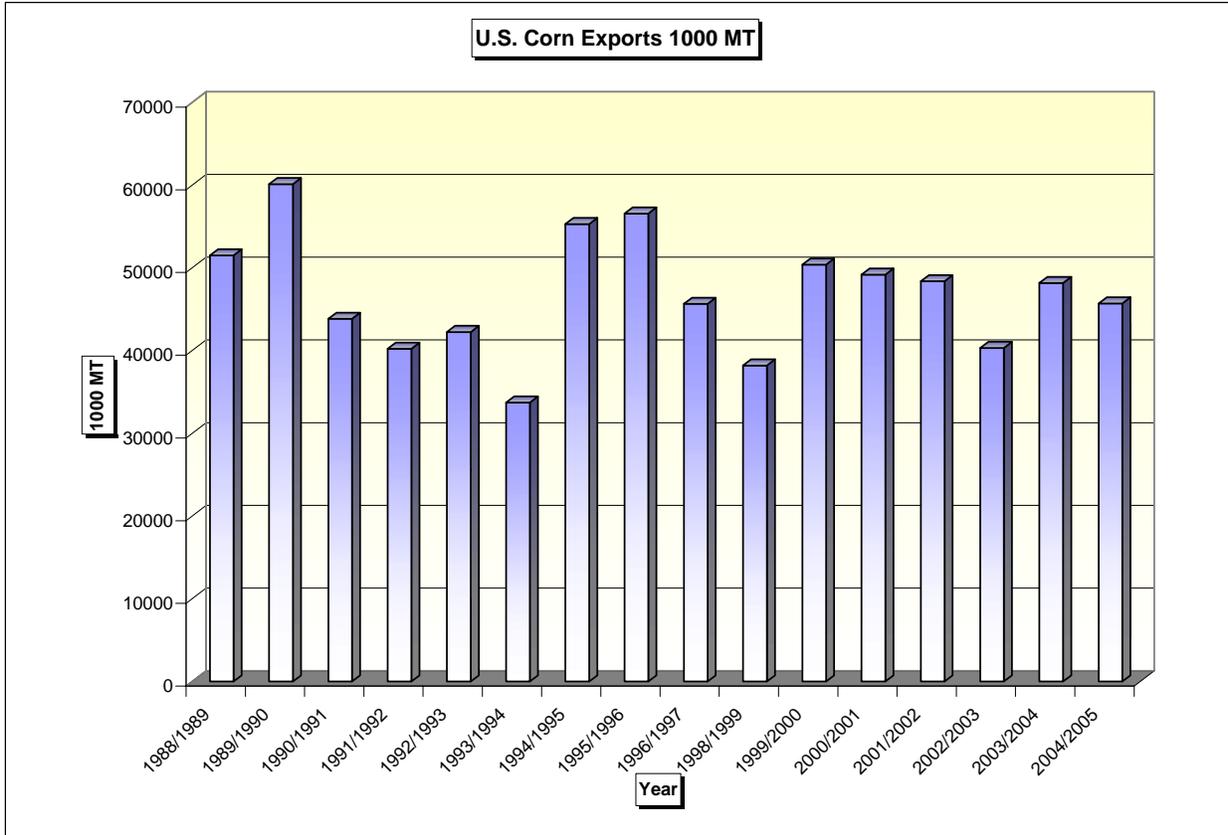
U.S. Corn Production	2004 Production (Bushels)
	11,807,217,000

2.8 U. S., Corn Utilization



2.9 U. S. Corn Exports

Corn exports, like all grains, have a tendency to vary with a host of factors. During the course of a given decade, exports of grain can vary considerably from year to year.

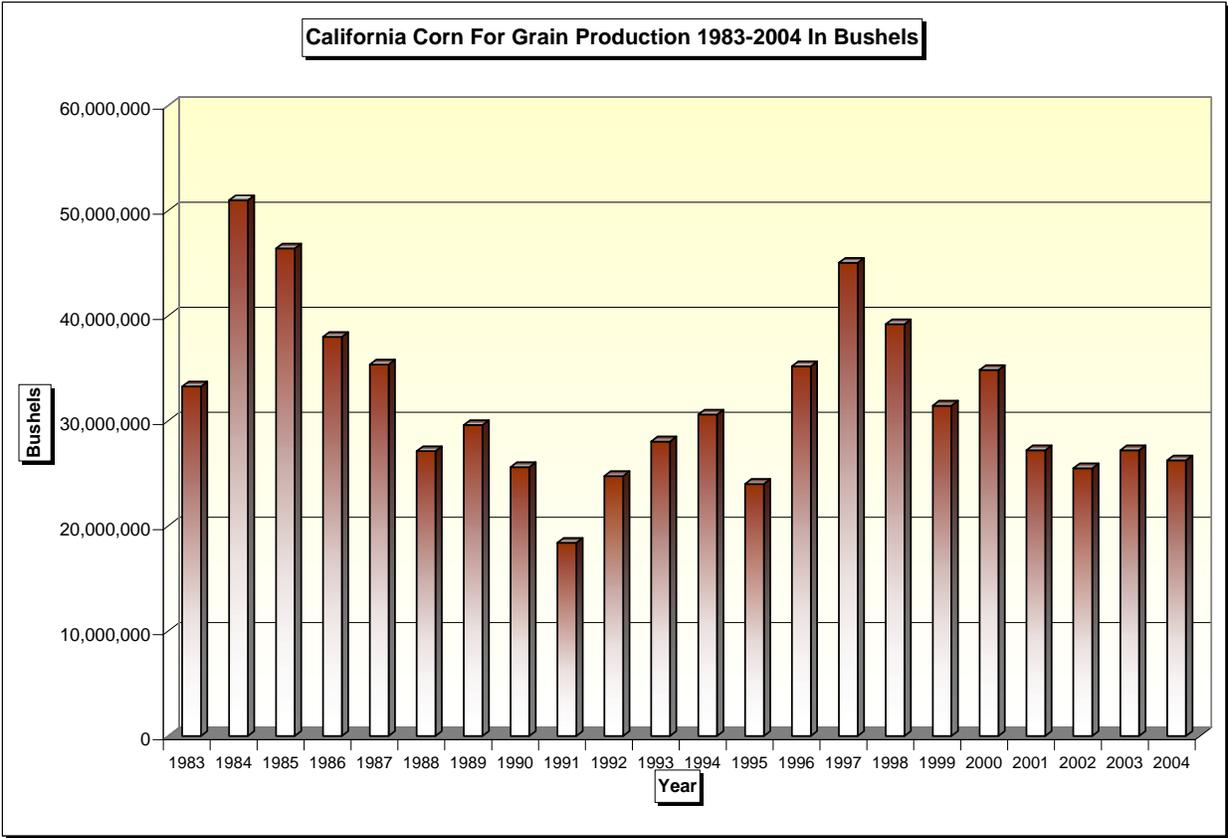


SECTION III: California Corn Production

3.1 California Corn Production

California corn production shows a continuing downward trend since 1997. The major factor for the falling production can be traced in large part to increased movement of corn for feed into the local California market from the Great Plains. The California corn production reached a peak in 1997 and in the last 6 years has fallen by an estimated 22,650,000 bushels (over 50%).

	2004 Production (Bushels)	1997 Production (Bushels)
California	26,250,000	45,050,000

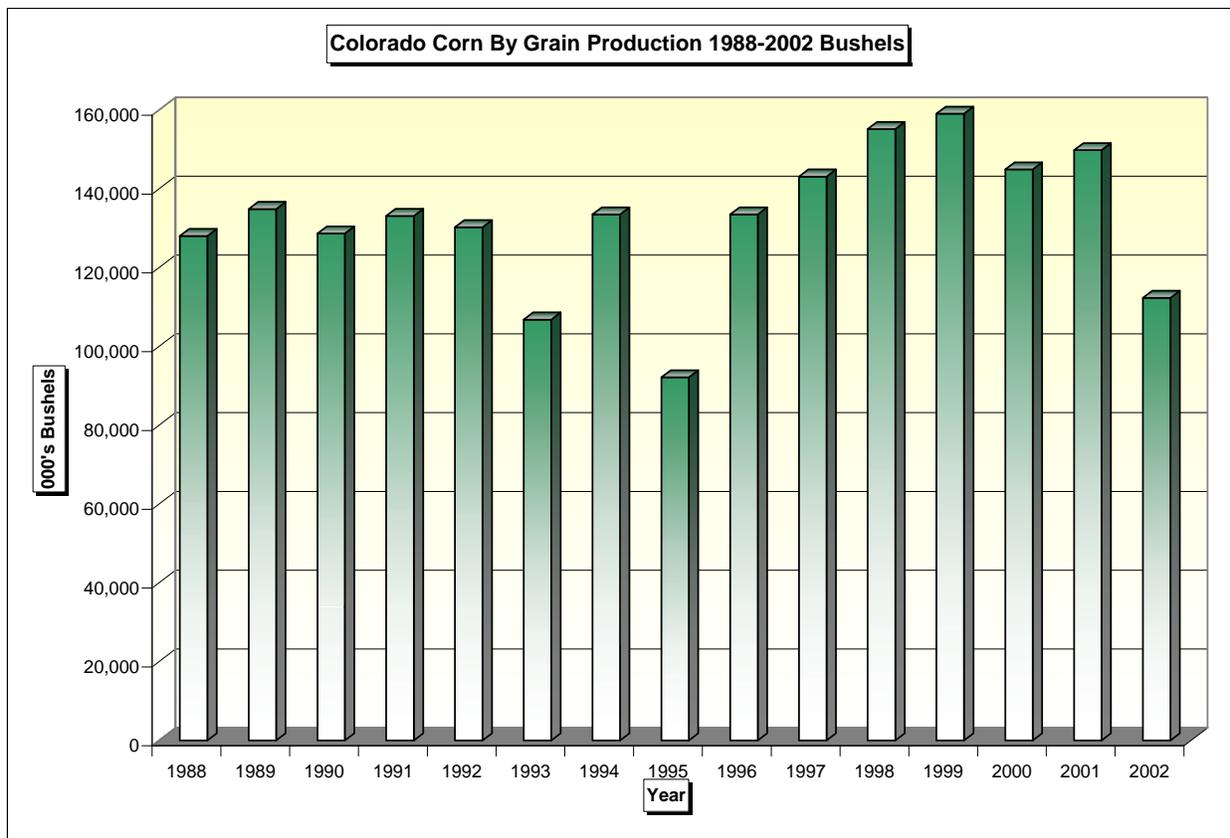


SECTION IV: Major State Corn Production

Next, the study looks at the major state corn production trends between 1988 and 2002. There were during parts of that period, a sustained drought along the front range of the Rockies extending out into the Great Plains. The study compares on the 1997-2002 period to look for trends of production

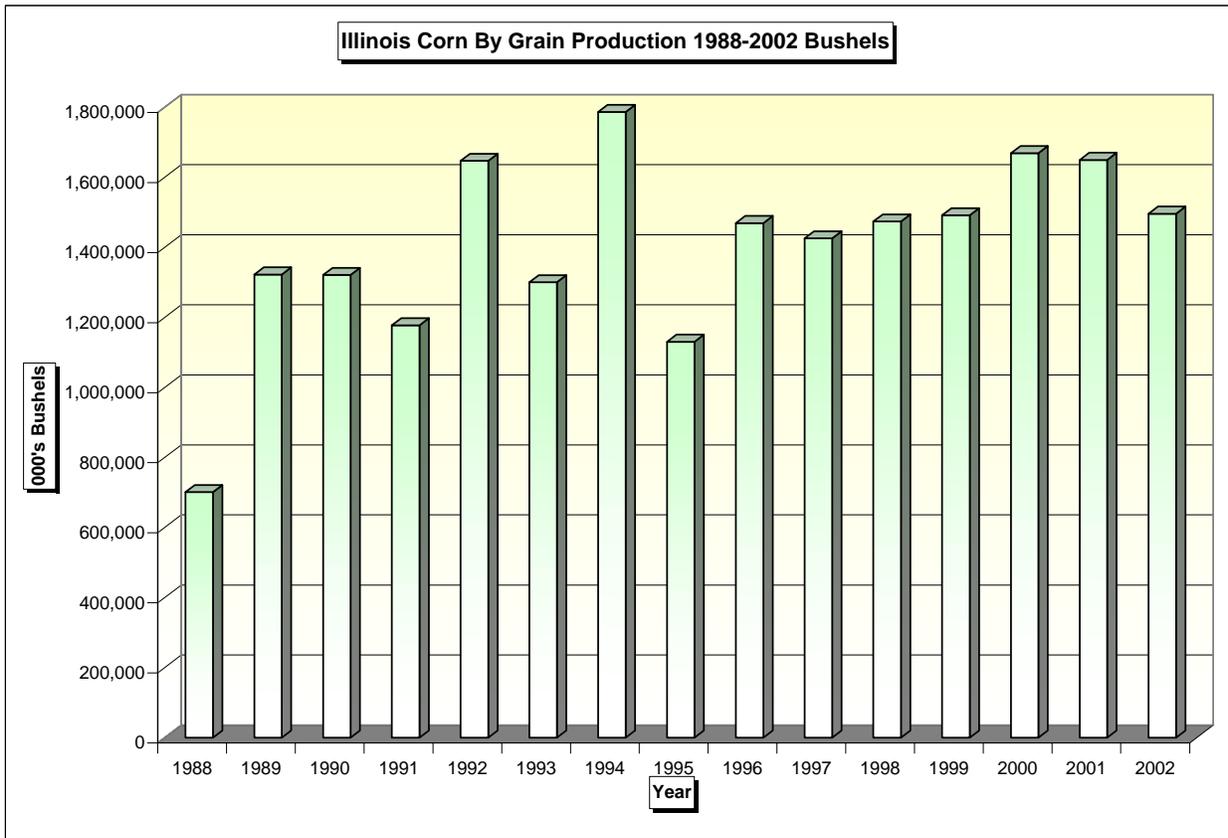
Colorado Corn Production

	2002 Production (Bushels)	1997 Production (Bushels)
Colorado	112,320,000	143,080,000



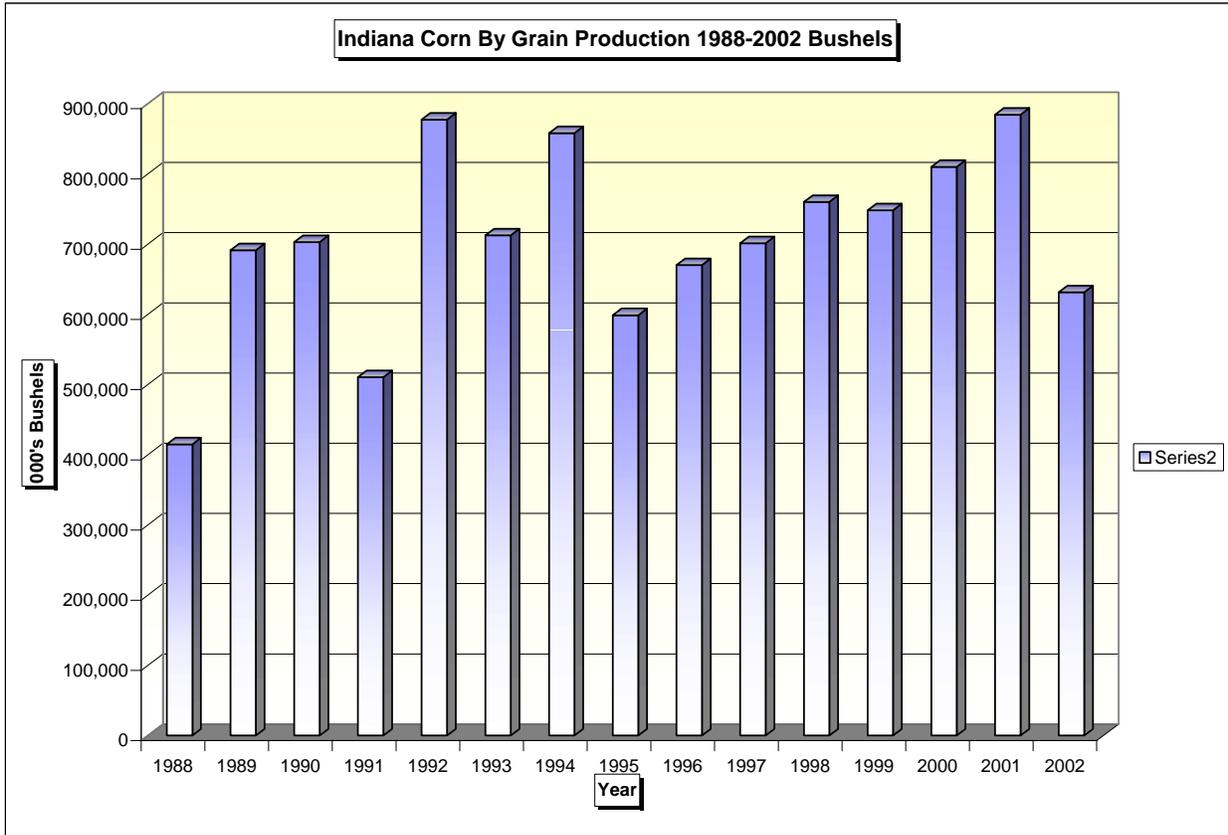
Illinois Corn Production:

	2002 Production (Bushels)	1997 Production (Bushels)
Illinois	1,496,000,000	1,425,450,000



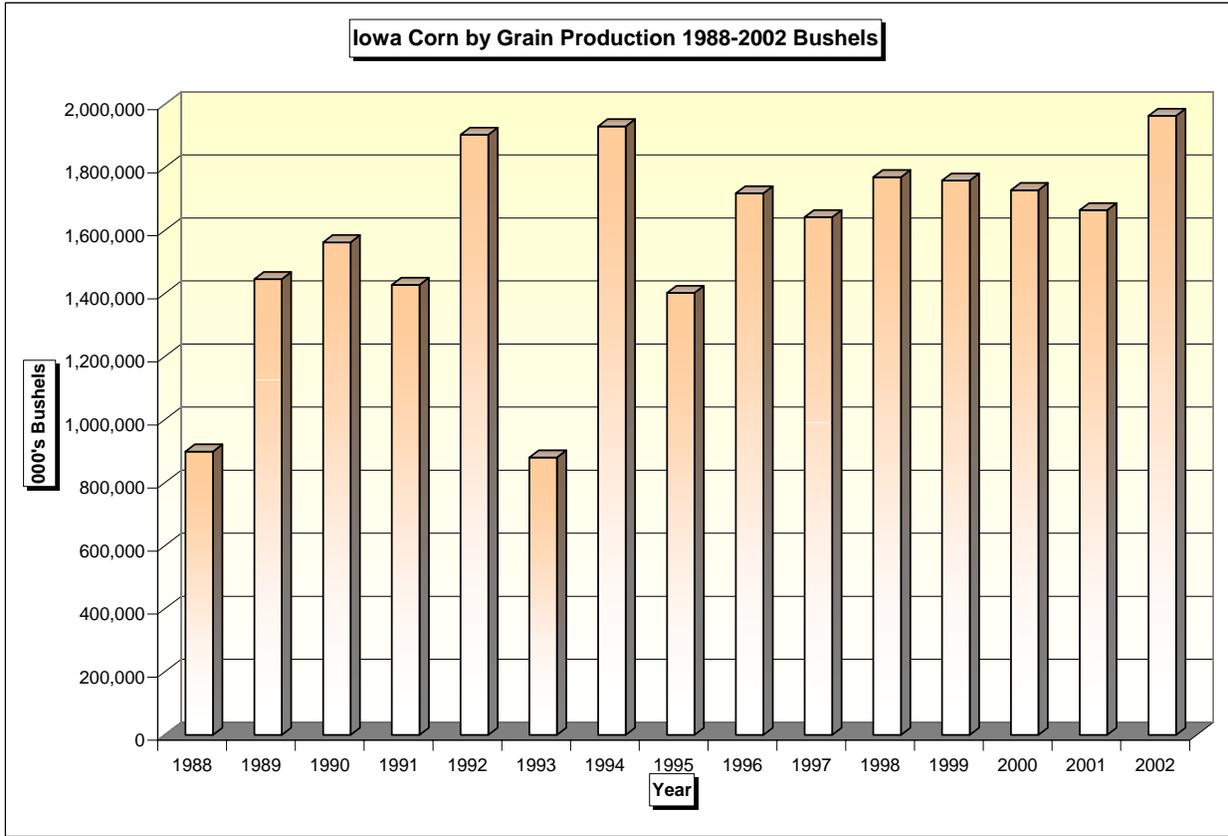
Indiana Corn Production:

	2002 Production (Bushels)	1997 Production (Bushels)
Indiana	631,620,000	701,500,000



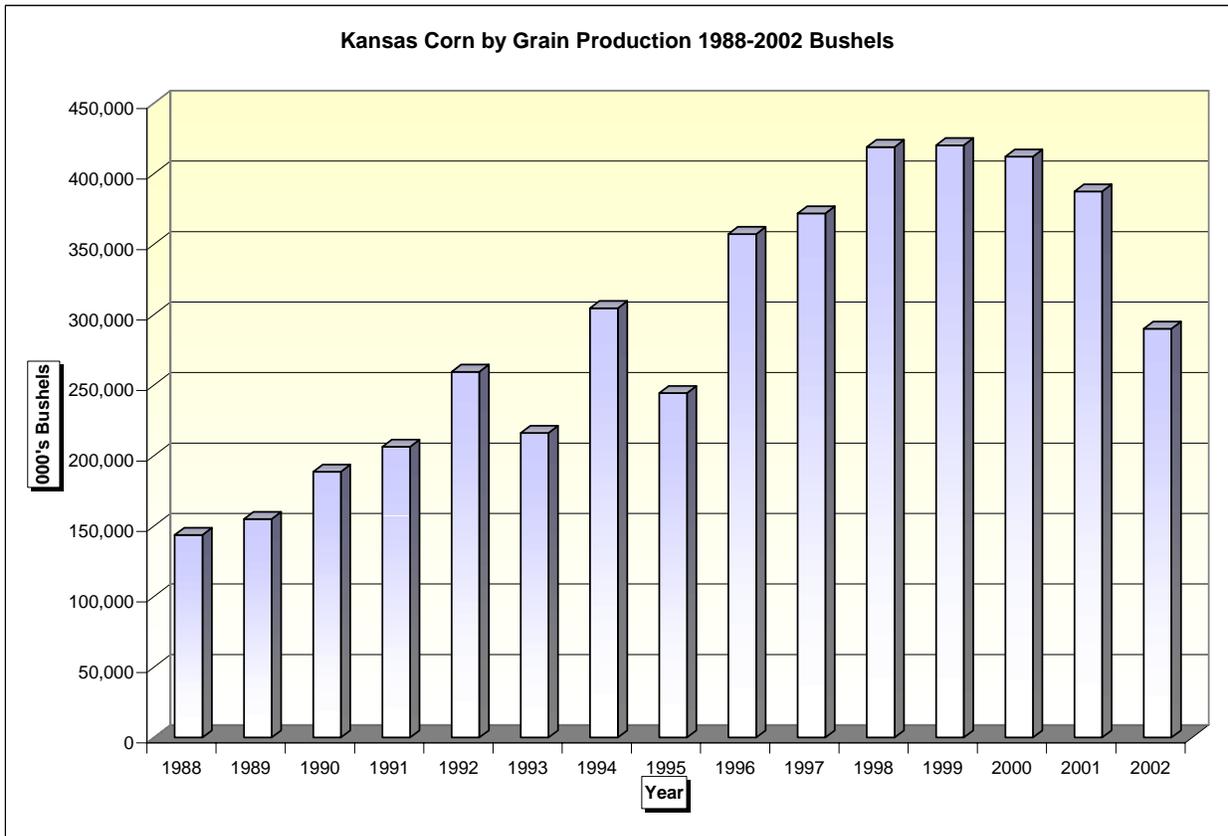
Iowa Corn Production:

	2002 Production (Bushels)	1997 Production (Bushels)
Iowa	1,963,500,000	1,642,200,000



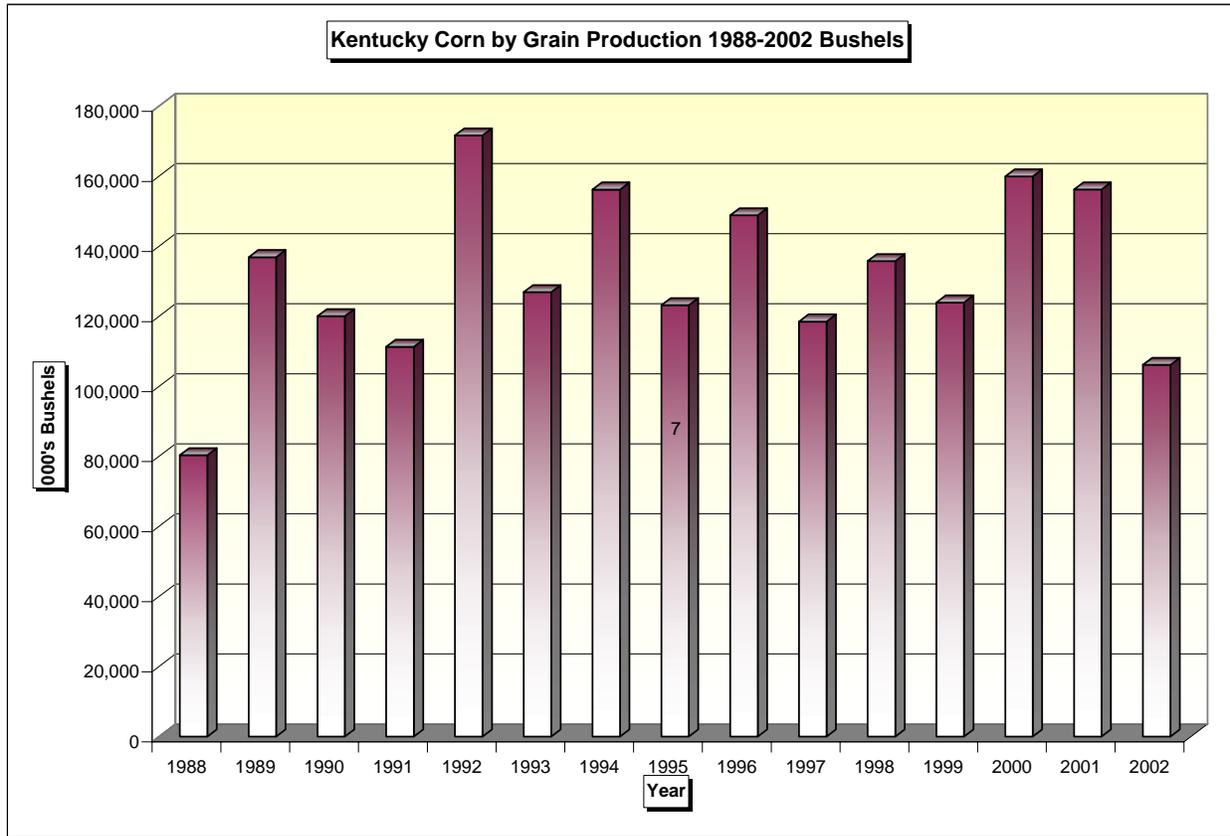
Kansas Corn Production:

	2002 Production (Bushels)	1997 Production (Bushels)
Kansas	290,000,000	371,800,000



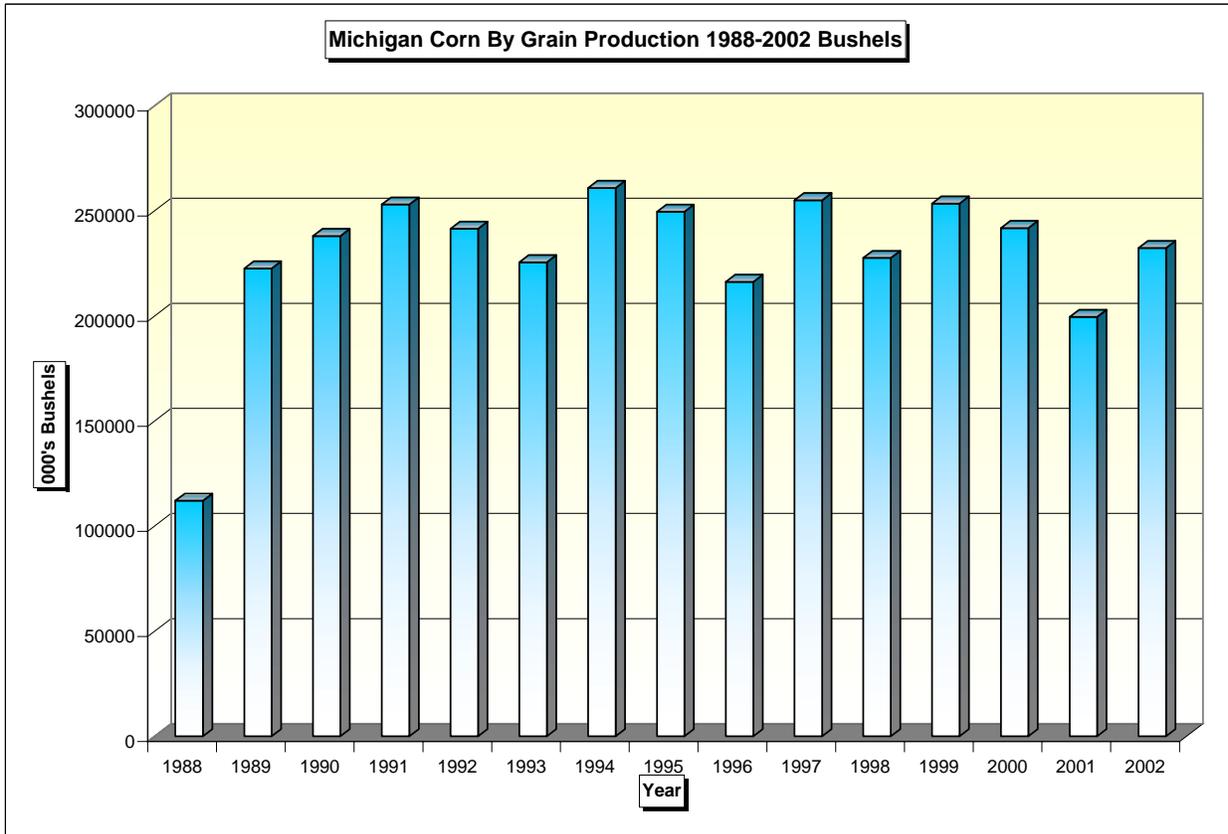
Kentucky Corn Production:

	2002 Production (Bushels)	1997 Production (Bushels)
Kentucky	106,080,000	118,450,000



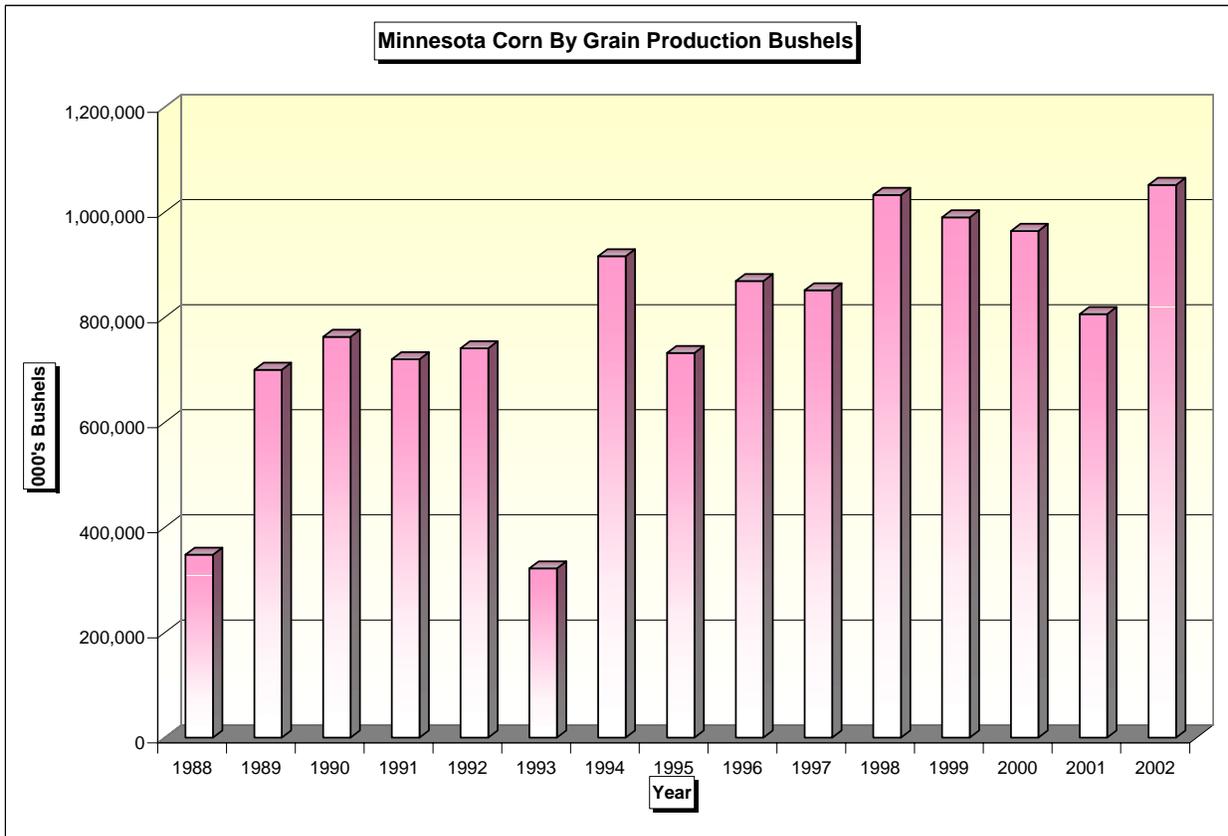
Michigan Corn Production:

	2002 Production (Bushels)	1997 Production (Bushels)
Michigan	232,200,000	255,060,000



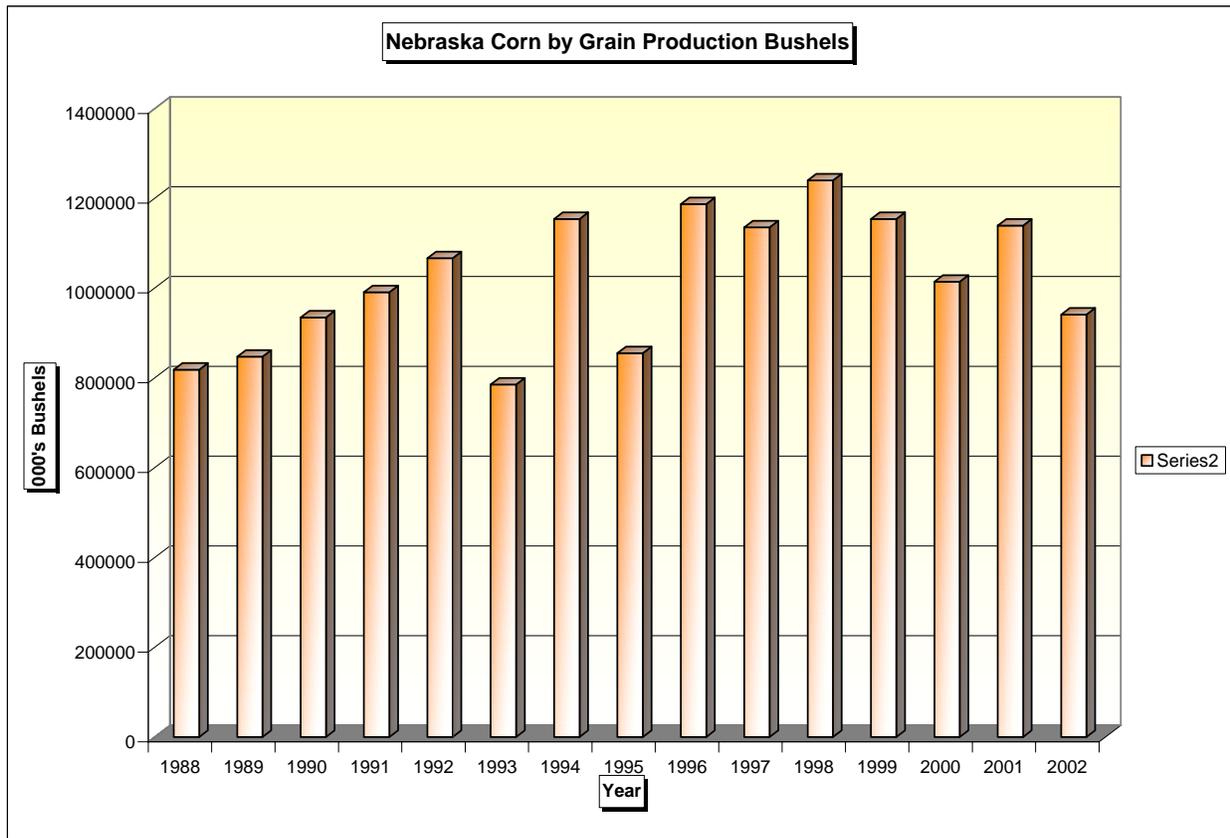
Minnesota Corn Production:

	2002 Production (Bushels)	1997 Production (Bushels)
Minnesota	1,051,900,000	851,400,000



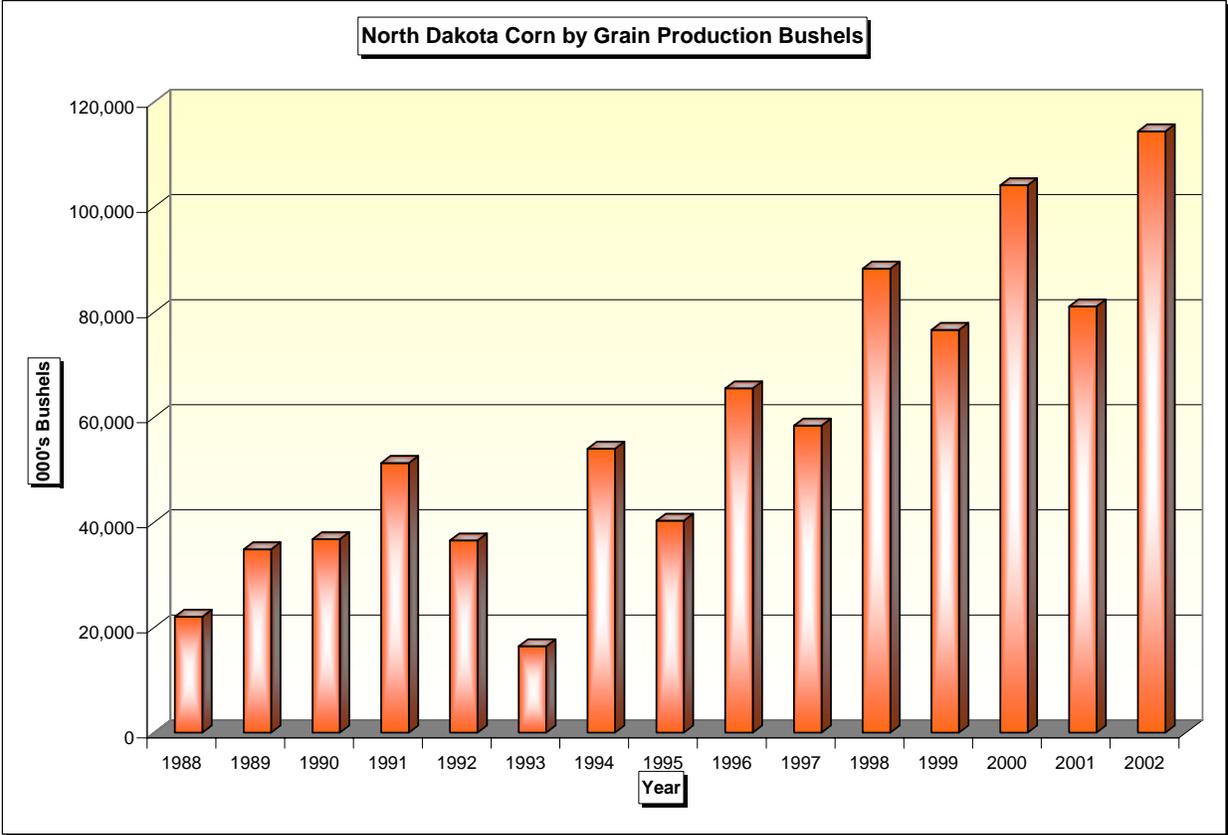
Nebraska Corn Production:

	2002 Production (Bushels)	1997 Production (Bushels)
Nebraska	940,800,000	1,135,200,000



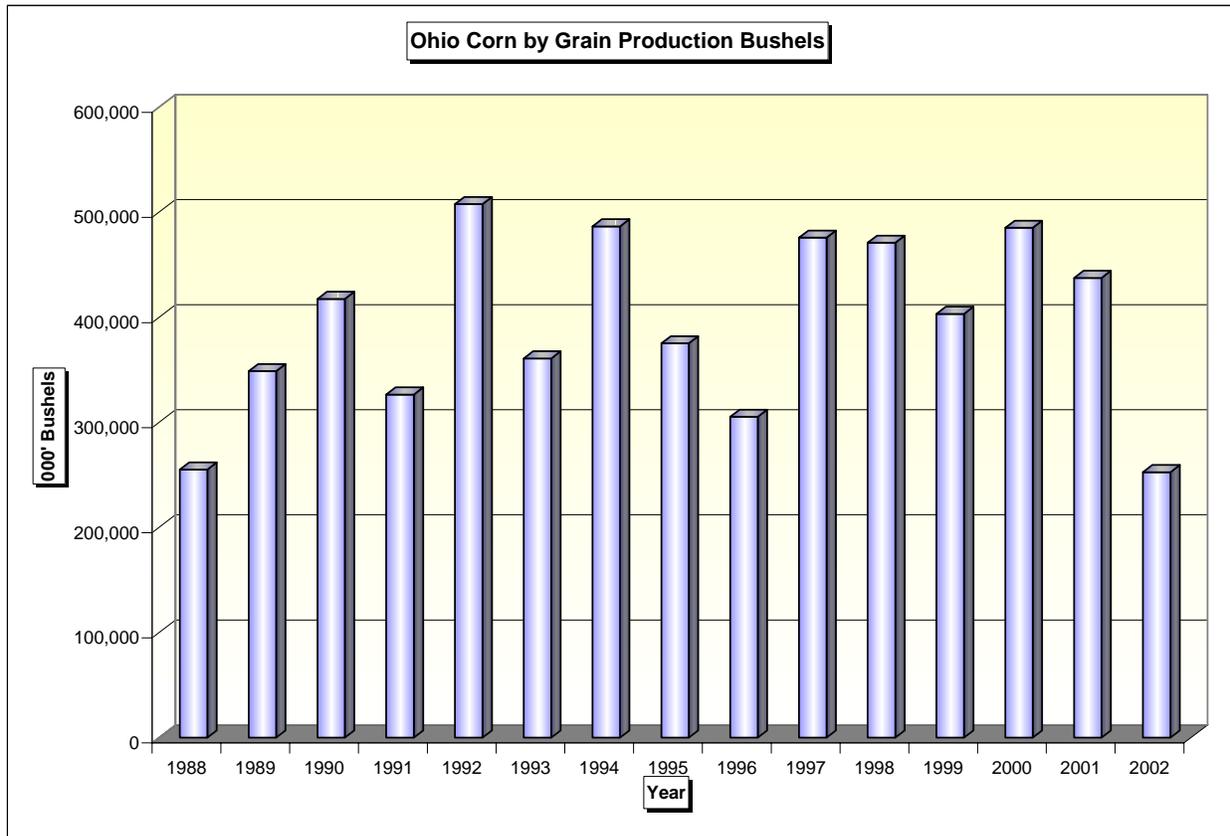
North Dakota Corn Production:

	2002 Production (Bushels)	1997 Production (Bushels)
North Dakota	114,425,000	58,410,000



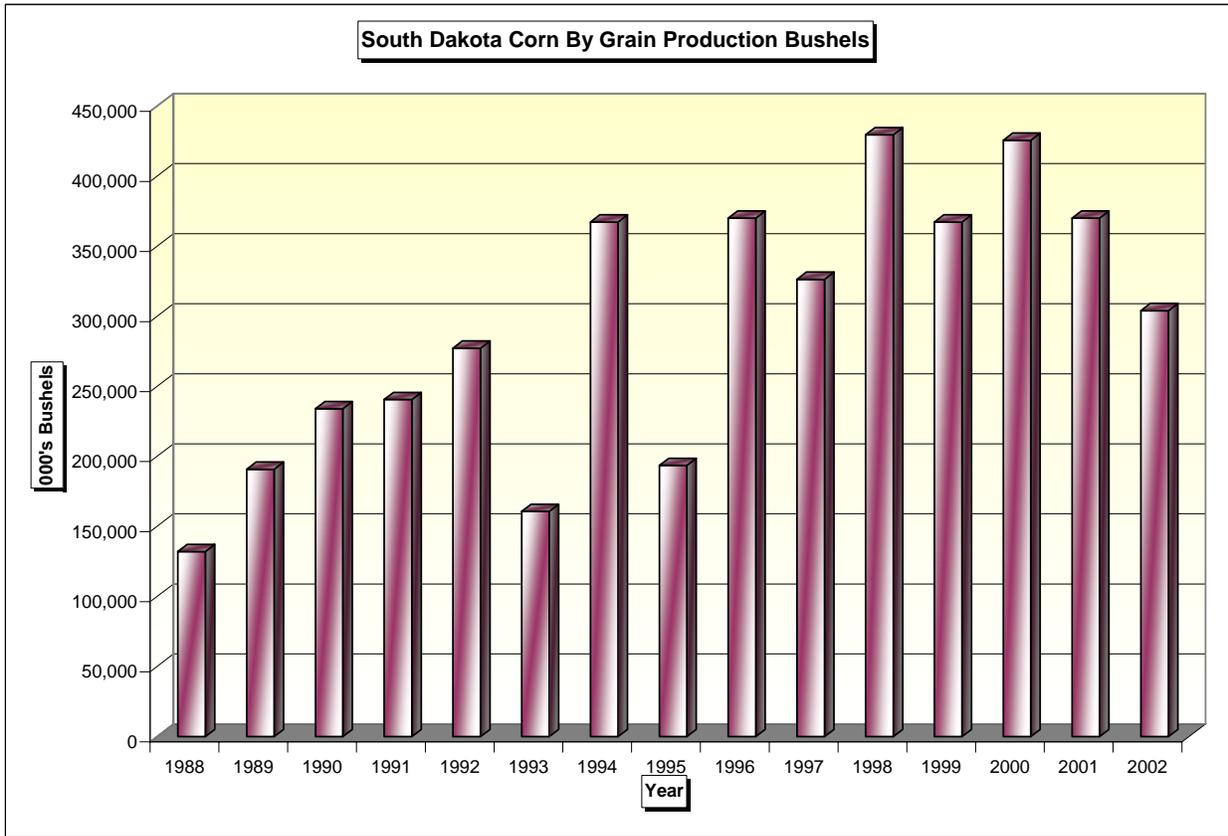
Ohio Corn Production:

	2002 Production (Bushels)	1997 Production (Bushels)
Ohio	252,560,000	475,700,000



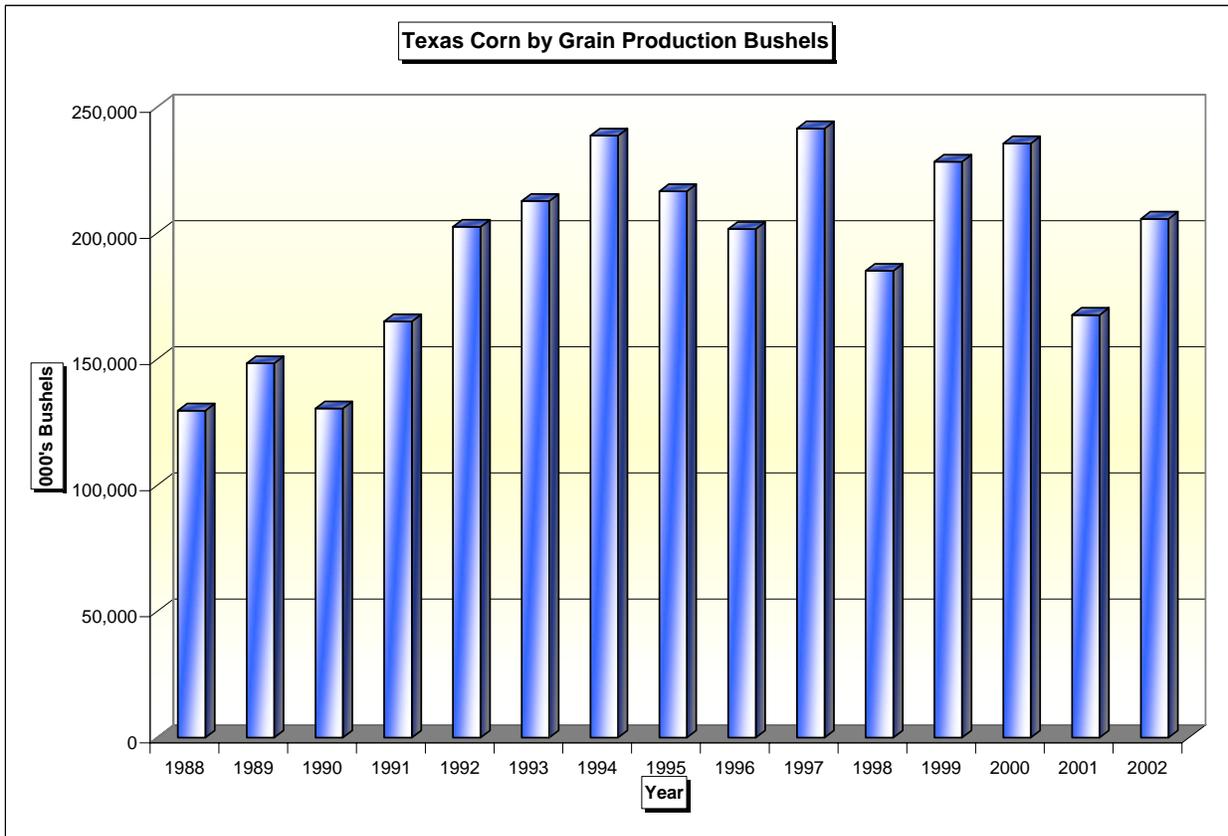
South Dakota Corn Production:

	2002 Production (Bushels)	1997 Production (Bushels)
South Dakota	304,000,000	326,400,000



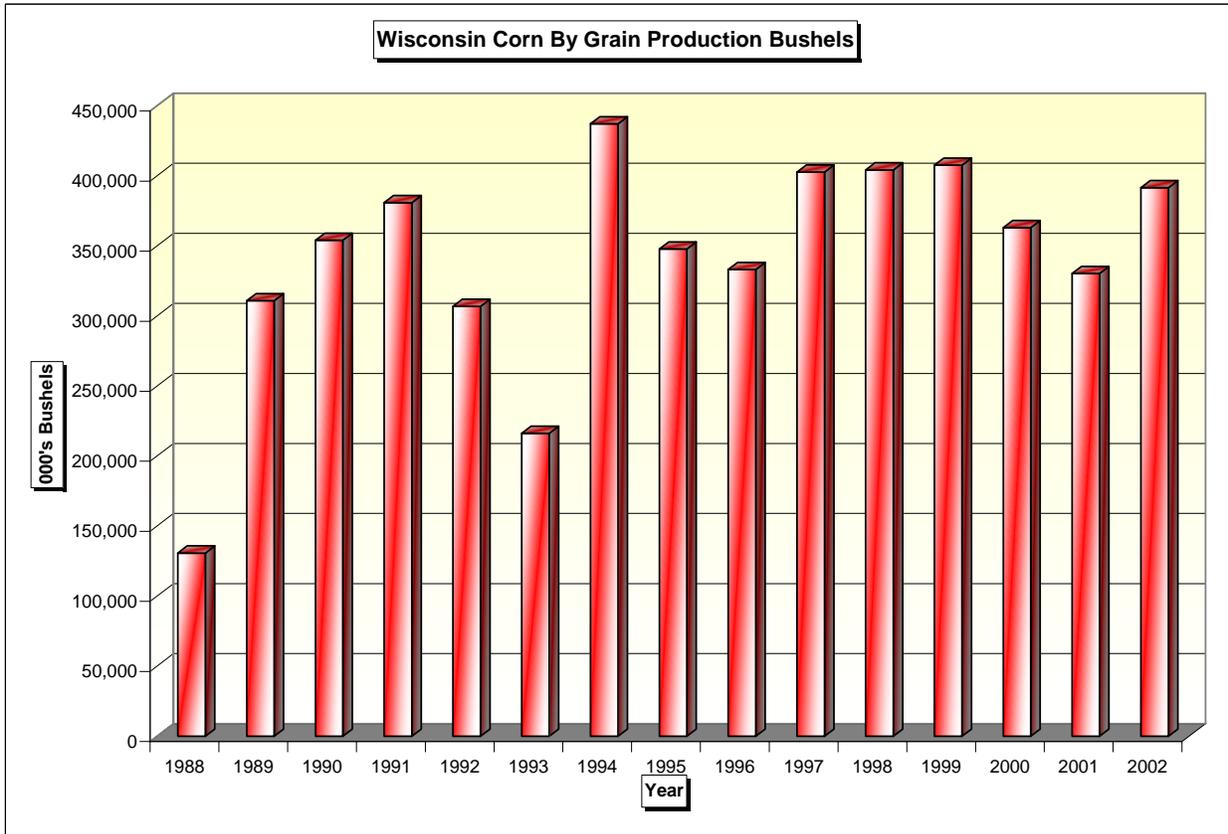
Texas Corn Production:

	2002 Production (Bushels)	1997 Production (Bushels)
Texas	205,660,000	241,500,000



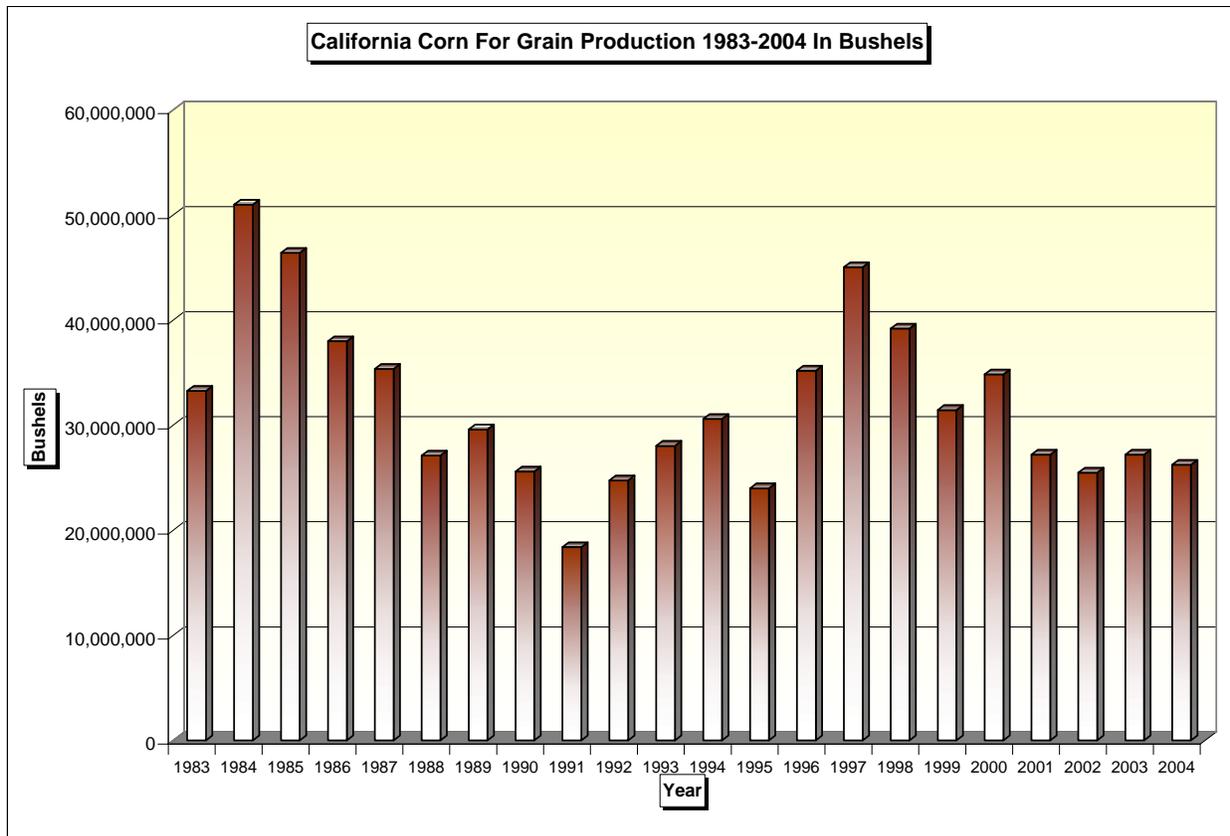
Wisconsin Corn Production:

	2002 Production (Bushels)	1997 Production (Bushels)
Wisconsin	391,500,000	402,600,000

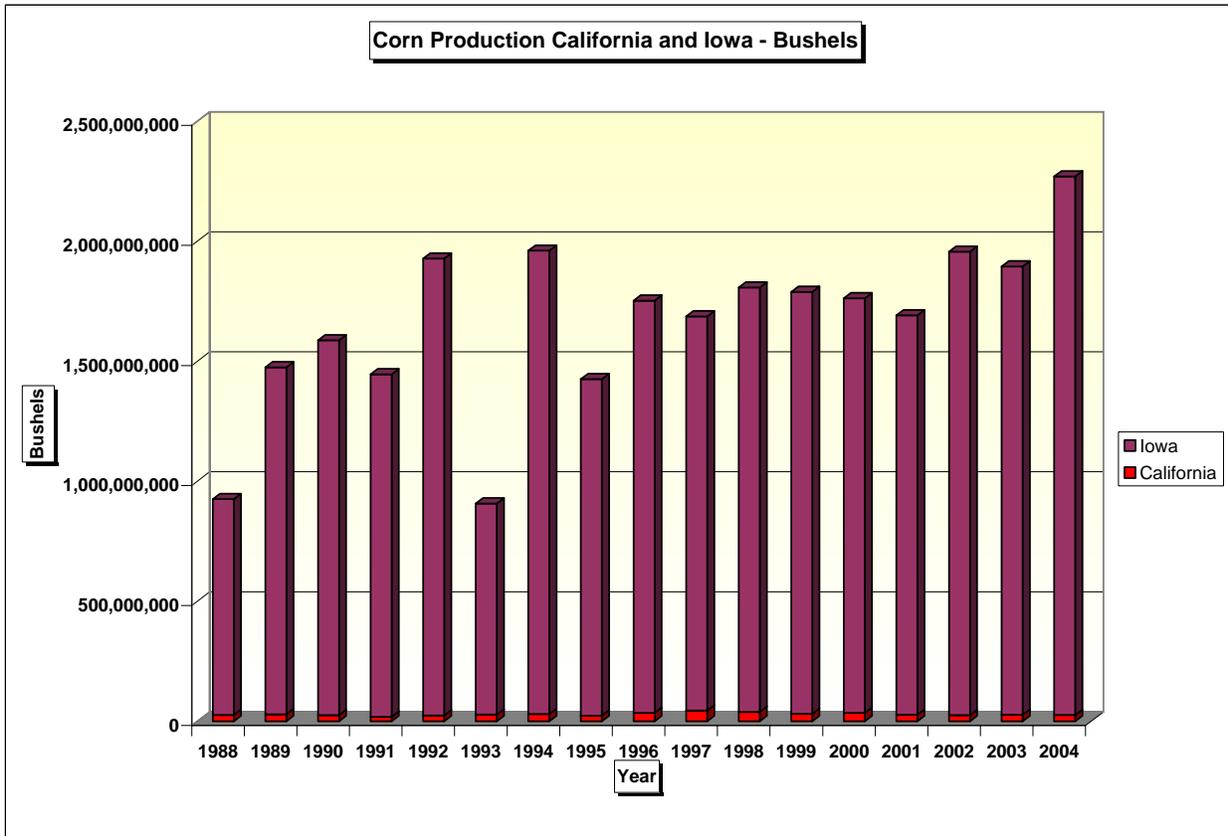
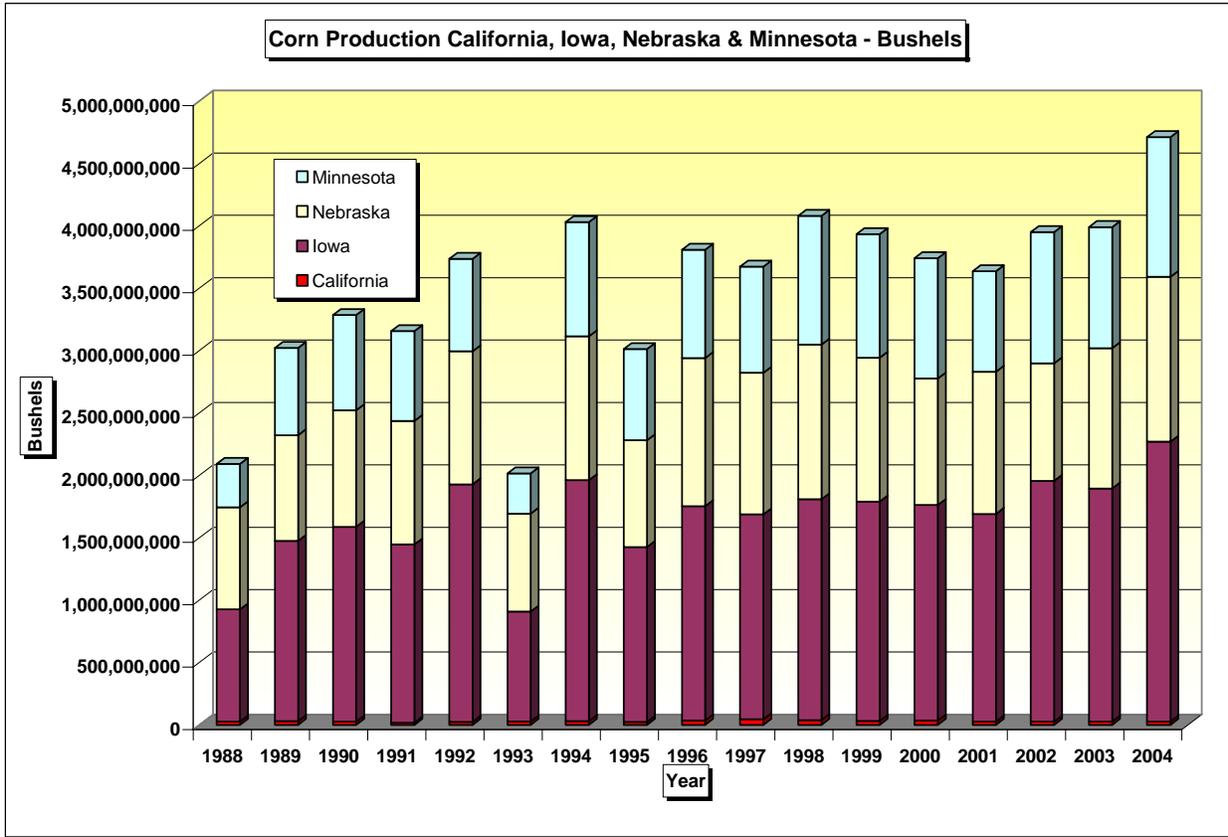


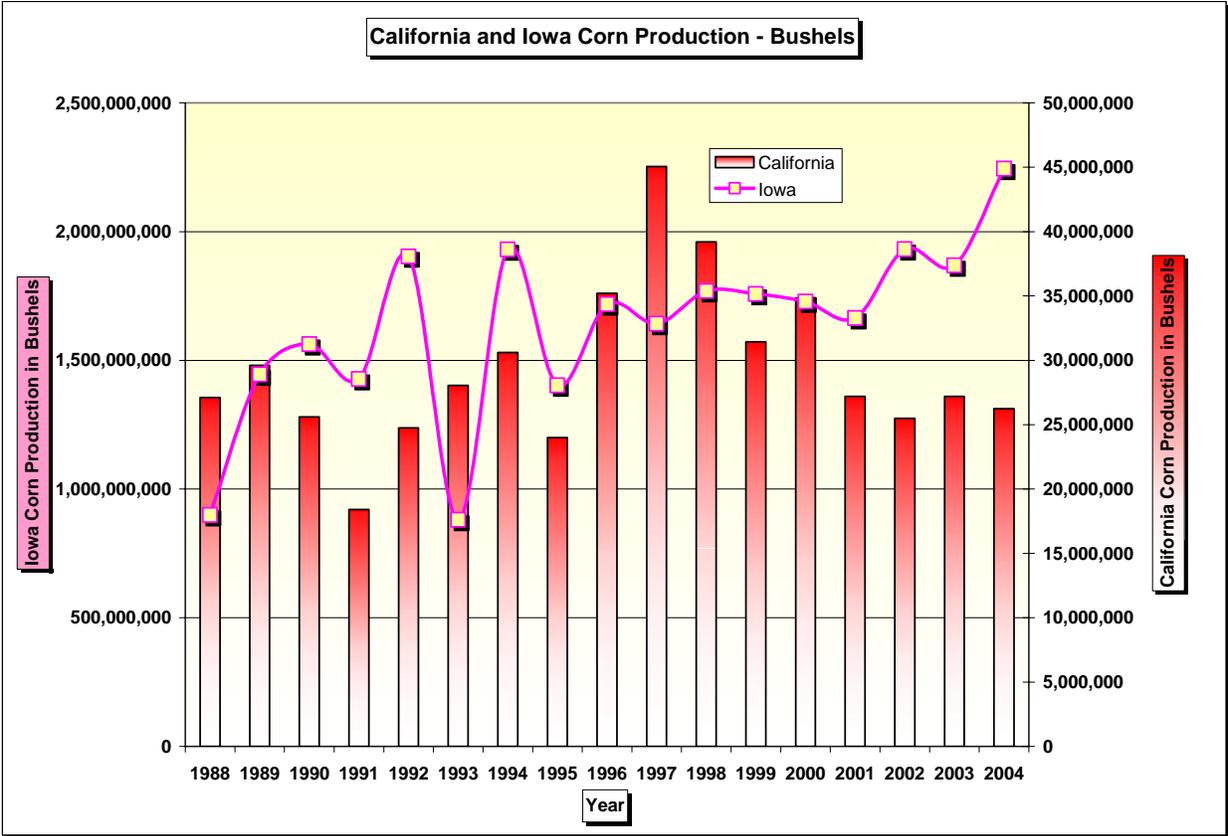
SECTION V: California Corn Production - Comparisons to Major Great Plains Corn Production

5.1 California Corn Production



5.2 California Corn Production vs Grain Plains Corn Production





SECTION VI: California Corn Market – Analysis of Truck and Rail Movement

6.1 Estimate of California Import of Corn by Truck

Research found that virtually no corn is being imported into California via truck as the distances are too great, the costs thus too high, and the rail rates are too low to allow truck movement into the California markets.

6.2 Estimate of California Import of Corn by Rail

Based upon the 2003 Surface Transportation Board's 2% way bill samples and analysis of the Business Economic Units (BEA) covering the corn belt for movements into the central CA BEA's, as defined by the Commerce Department, it is estimated that the BEA's in Iowa and Nebraska shipped via UP about 13,000 carloads of corn which translates to about 1,920,000 tons (68,571,000 bushels) into central CA in a twelve month period. California corn for grain production is estimated to be only 27,200,000 bushels in 2003. It is evident that the rail movement into the central CA feed market is dominated by the import movement by rail not by domestic production in the San Joaquin valley.

Coupled with the downward trend of California corn production, the facts suggest that railed-in corn is displacing California corn in the local feed markets. Conversations with California corn growers confirmed that corn that is being rail supplied is displacing local grown corn. The trend is compounded by the fact that California locally produced corn does not tend to be available year round, so a supplier that desires to utilize 'local or fresh' corn for feeding cannot be guaranteed a full year round supply. The lack of consistent delivery is embedded in the lack of on-farm storage coupled with the fact that virtually all of the California produced corn is utilized in a couple months. The competition with out-of-state railed-in corn however, has tended to reduce local prices and thus local production.

SECTION VII: Major Issues Facing California Corn Growers In Marketing Locally Grown Corn + *Corn Quality Issues*

7.1 **Issues and Opportunities Facing Local California Corn Growers and Marketers**

Pursuant to discussions with growers and marketing representatives, California corn producers are faced with three major issues:

1. The riling-in of corn belt corn by the railroads at below full rail cost freight rates which puts
2. Downward pressure on corn prices due to oversupply of corn in the local feed market.
3. The lack of on-farm storage which hinder the corn producers ability to provide year round supply

7.2 **Phyto-Sanitary Issues:**

In discussions with California growers and merchandisers, there is some disagreement as to the value of the freshness issue to local feed industry. The issue of phyto-sanitary concerns with out-of-state corn, was a subject that received both agreement and disagreement. Corn that is railed-in generally is not as fresh as locally produced corn.

7.3 **Freshness:**

Does the relative freshness of the locally produced corn have value to local feeders? It is widely believed that the railed-in corn that is being fed in the local California feed markets is one to five years old, thus older than current crop production.

One other issue that came from discussions with growers and marketers was that each time corn is handled its quality is adversely affected. The more times a grain is handled, the more problems for example, when corn is rolled. Thus when a customers is rolling corn, many times they like to take local corn that is handled only once or twice.

Corn produced in California can be from current crops and does this freshness have value to a feeder? The general consensus among California growers and merchandisers was yes, but most felt there were other issues such as lack of ability to supply year round, that mitigated the positive effects of freshness. Again most local merchandisers agreed with the idea that year round supply was a concern and education of local feeders would be essential to develop that aspect of the market. One major marketer of corn has been successful in developing a number of year around of customers for California based corn through the use of specific marketing and the willingness of the customer and marketers to agree to prices that allow for a long-term storage of the California based corn thereby giving the customer year round access to a consistent product. While this situation was not be utilized universally, it does suggest

that there may be some potential to develop with growers and marketers of corn a program to cater to individual desires of customers for local corn. Such programs may be limited in scope and require individual market targeting.

7.4 Lack of On-Farm Storage and Federal Storage Facility Loan Program:

In several conversations with California merchandisers concern was expressed over the lack of on-farm or commercial storage to store California produced corn. If commercial storage was available and it was thought to be somewhat limited, that storage space would often times, not be available for year round storage. There is insufficient on-farm storage in California for storage of large amounts of locally produced corn and feeders do not have the capability or desire to buy and store a year round supply of corn to meet their feeding needs.

This lack of on-farm storage manifested two major problems when it comes to marketing California corn. In California, corn is not a major crop but is generally a rotational crop.

First, a feeder of corn desires consistent delivery of a consistent grain. Changing grain supplies can cause issues on the feeding program.

Second, because the local corn growers cannot guarantee year round supply, the California corn has a tendency to compete directly with rail-in corn. If the buyers of corn – control supply of out-of-state corn during the local harvest of corn in California, the California corn is generally sold in about a 60-90 day period. Because of this ability of buyers of corn to control the supply of corn in the market place, the corn prices for local corn are set by the railed-in corn prices. The end-users of corn are becoming larger and larger in California.

Would the building of on-farm storage for corn, allow the California grown corn to develop a niche market as 'fresh' corn with certain feeders? There is little agreement among the growers and merchandisers whether the economics would pay-out of building additional on-farm storage or additional commercial storage to allow for year round delivery of fresh local corn. Part of this lack of agreement stems from the fact no contact has been made with local feeders to determine if local vs. railed-in corn would be attractive to the feeding program in question. Thus the lack of consensus may be because local feeders/local corn growers have never pursued or taken a look at such a program – because it has not been available.

Research of FSA shows that the Farm Storage Facility Loan Program under the Commodity Credit Corporation (CCC) Charter Act is available and USDA may make loans to producers to build or upgrade farm storage and handling facilities. The Farm Storage Facility Loan Program is administration by USDA Farm Service Agency (FSA).

Corn is one of the commodities covered under this storage program and any person who is a landowner, landlord, operator, producer, tenant leaseholder or sharecropper who can meet their criterion can utilize the program. Criterion requirements center

around demonstrating need for increased storage capacity, meeting local building codes, compliance with USDA highly erodible land and wetlands regulations, etc.

The eligible storage can include both storage and drying equipment but not storage utilized for commercial storage.

7.5 **GMO vs. Non-GMO issues with local California Corn**

Feed corn is generally GMO corn. The barriers for utilizing GMO corn in food products appear to be waning. In a recent international study, published in 2005 – this one conducted in Portugal focused on concerns from some critics of genetically modified crops that the foods may raise consumers' risk of allergic reactions, and found no evidence that this is the case.

The study adds to evidence that several widely used strains of GM corn and soybeans do not promote food allergies.

All of the products — three corn strains engineered to resist certain crop-ravaging insects and a soybean variety that tolerates a common weed killer — have been on the market since the 1990s. The new study looked at a group of allergy-prone adults and children who had consumed products containing the biotech foods at some point since their approval in Europe.

The researchers, led by Rita Batista of Portugal's National Health Institute in Lisbon, gave 77 study participants allergy tests to see whether they reacted differently to the GM corn and soy than they did to conventional varieties.

None of them did, according to findings published in the *Journal of Allergy & Clinical Immunology*.

Much of the corn and soybeans grown in the U.S. is transgenic, meaning a gene or genes has been inserted into the genome of the plants to give them a desired trait.

European countries have been much slower to embrace the technology, as consumers there are far more wary of what some call "Frankenfoods." One of the concerns some critics have raised is the potential for allergic reactions to the foreign proteins in GM foods; if a gene were transferred from an allergenic source, that could make the resulting GM food more likely to trigger allergies.

The products tested in the current study included two manufactured by U.S. biotech giant Monsanto, a corn variety known as MON 810 that is engineered to resist certain insects, and Roundup Ready soybeans, which are designed to tolerate the company's Roundup weed-killer.

The researchers also tested two pest-resistant corn varieties made by the Swiss firm Syngenta and one herbicide-tolerant strain manufactured by Germany's Bayer Crop Sciences. None of these products, the study authors note, contain genes derived from sources known to trigger allergies.

“The transgenic products under testing seem to be safe in terms of allergenic potential,” the researchers write. They do, however, call for routine postmarket testing to monitor the possibility of allergic reactions to GM foods.

In surveying some the industries that utilize California based corn, it appears that there are several industries that prefer the use of non-GMO corn. Virtually all corn that is imported into the State of California is GMO corn. It is difficult to find non-GMO corn in the great plains for use in the feed industry. The question then surfaces whether the benefits of non-GMO corn grown in California would have appeal to any California industrial base and do those base industries have a growing or bright future? Again in conversations with California based growers as well as marketers of corn supplying various California based industries, the general consensus was that while some felt that the organic industries might prefer non-GMO corn, most felt that marketing efforts promoting non-GMO versus GMO would probably not prove to be economically rewarding. In the future it may be that only GMO corn may be available for sale to all industries.

In discussion with growers and marketers, the point was made that there may be in the future, pricing incentives for non-GMO corn in bags for use in specialty markets.

7.6 Potential Industries for Continued Development of California Sourced Corn

In surveying current uses of California based corn several industries surfaced that are both currently large and potentially growing industrial bases for California based corn.

7.6-1 The California Tortilla Industry

In an article from Milling and Baking News in June, 2003, the Tortillas, long a staple of the Hispanic diet because of their versatile use, have found a way into mainstream eating patterns, gaining an ever-increasing share of the grain-based foods category. In the 52-week period ended Oct. 5, 2002, U.S. tortilla sales totaled \$822 million, up 2% from the same year-ago period and up 18% from the same period in 1999, according to data issued by ACNielsen, New York. The trends also show that the Tortilla and the tortilla/tostado industry has transcended from the Latino community to mainstream popularity.

The 18% rise during the past three years illustrates strength nearly unmatched by other leading grain-based foods categories. By comparison, during the same four-year period, U.S. cookie sales gained 3%, U.S. cracker sales 6%, U.S. fresh bread sales 9%, and U.S. fresh bagels 15%. Sales of ready-to-eat cereal declined 6% during the period, according to ACNielsen. Chicago-based Information Resources, Inc., breaks down the tortilla category into three segments — hard/soft tortillas/taco kits, refrigerated tortillas, and tortilla/tostada chips. Of course corn is a major ingredient in the traditional tortilla and chip industries.

The industry is seeing in addition to the traditional players, a host of small start-up companies coupled with a growing number of outlets marketing the tortilla. The rise of consumer demand for wraps and larger size burrito tortillas is continuing. Although the wraps have generally been wheat flour based, the larger size tortilla are being served in a growing number of non-Mexican restaurants as well as at home. The top selling brands are Mission, Azteca, La Banderita, Pepito, Tumaros, Resers, Cruz, Pinata, and Guerrero.

The Milling and Baking report states, "According to data compiled as part of an Aspex Research Study for T.I.A. (Tortilla Industry Association), tortillas, which rank as the second most popular bread type in America after white bread, are expected to grow to a \$6-billion industry by 2004, with annual growth of 8% to 9%. An expanding Hispanic population combined with non-Hispanics increasing tortilla consumption has fueled that growth, T.I.A. said".

The largest part of the market is the tortilla/tostada chips segment. In 2003 this market had over \$1.5 billion in sales (source: Information Resources, Inc.). The top selling brands are Doritos, Tostitos, Tostitos Scoops, Santitas, Mission Estilo Casero, Baked Doritos, Doritos Extremes, Baked Tostitos, and Torengos.

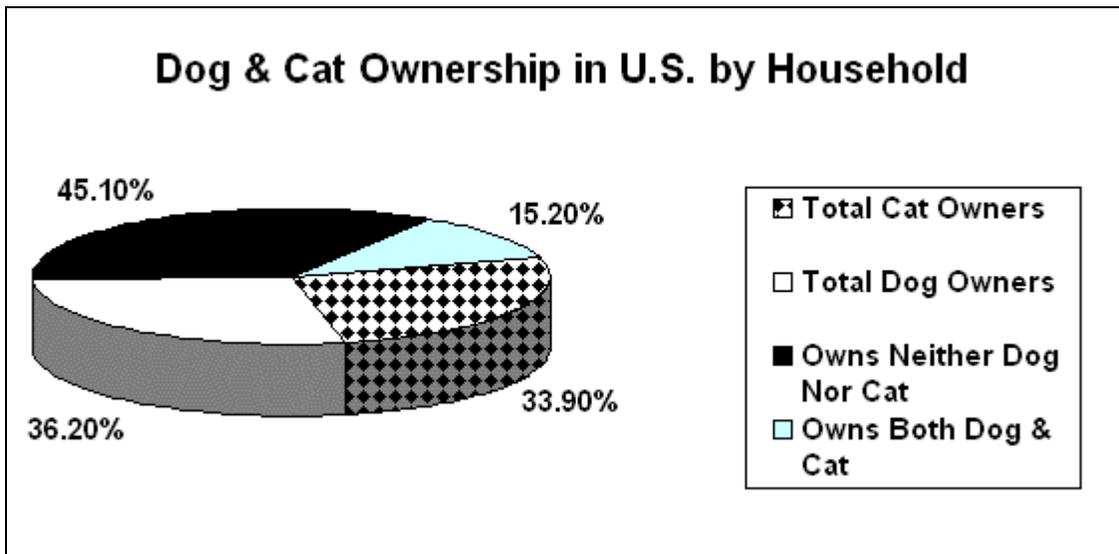
The industry is also expected to continue to grow and provide more growth opportunities in the U.S. and abroad.

It appears that the majority of the corn utilized in the tortilla production in California is California produced corn and about 80%+ is pre-contracted.

7.6-2 The Pet Food Industry Continues to Grow in California

The principal ingredients of pet foods are meat, poultry, seafood and their by-products, feed grains and meals and those feed grains are predominantly corn. According to the Pet Food Institute, "the purchase and use of these ingredients by the pet food industry not only provides nutritional foods for pets at reasonable costs, but provides an important source of income to American farmers and processors of meat, poultry and seafood products for human consumption."

At the Federal level, pet food labeling and advertising claims are regulated by the U.S. Food and Drug Administration (FDA), the Federal Trade Commission and U.S. Department of Agriculture. All pet food plants are subject to FDA inspection, and FDA's low acid canned foods regulations apply to pet foods just as they do to canned foods processed for human use.



Most states require, under state animal food laws and regulations, that pet food labels be registered and approved. Pet food labels are required to provide truthful and non-misleading information and have labeling requirements similar to human food, although they are not required to adhere to the minimum requirement labeling.

The claims of complete, perfect, scientific, balanced, etc., under AAFCO regulations, may not be utilized unless:

1. It is nutritionally adequate for a normal animal in all of its life stages - growth, adult maintenance, and gestation/lactation, or
2. The claim is modified by stating that it is complete and/or balanced for one or more specific life stages.

The pet food industry does not appear to focus on the issue of GMO and non-GMO and thus it is silent on the issue with respect to use in their industries.

The use of corn as the base in the dry food section by the pet food industry is well documented. Doane dog food company is the largest user of corn and wheat for feed in Southern California. They do not manufacture food under their own name, but manufacture for a number of retailers.

Estimate Annual Pet Food Sales by Type of Product

Source: Ann H. Gurkin and Susan D. Fenstermacher
Davenport Company LLC

(All dollar figures are in millions)

	1981	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Dry Dog Food (includes soft dry)	\$1,698.0	\$2,700.2	\$2,836.8	\$2,905.0	\$3,717.0	\$3,981.0	\$4,303.0	\$4,496.0	\$4,657.0	\$4,955.0	\$5,201.0	\$5,314.2
Canned Dog Food	\$790.0	\$1,209.9	\$1,175.5	\$1,129.2	\$1,250.0	\$1,240.3	\$1,271.0	\$1,283.0	\$1,301.0	\$1,340.0	\$1,379.7	\$1,375.0
Dog Treats	\$214.0	\$1,000.6	\$1,065.9	\$1,165.1	\$1,107.5	\$1,148.6	\$1,165.0	\$1,185.0	\$1,265.0	\$1,370.0	\$1,475.0	\$1,570.0
Semi-Moist Dog Food	\$281.0	\$102.1	\$95.4	\$101.8	\$102.5	\$103.2	\$104.5	\$98.0	\$85.0	\$84.0	\$80.3	\$40.8
<i>TOTAL DOG FOOD</i>	<i>\$2,983.0</i>	<i>\$5,012.8</i>	<i>\$5,173.6</i>	<i>\$5,301.1</i>	<i>\$6,177.0</i>	<i>\$6,473.1</i>	<i>\$6,843.5</i>	<i>\$7,062.0</i>	<i>\$7,308.0</i>	<i>\$7,749.0</i>	<i>\$8,136.0</i>	<i>\$8,300.0</i>
Canned Cat Food	\$730.0	\$1,789.4	\$1,910.7	\$2,009.9	\$1,438.0	\$1,535.0	\$1,546.0	\$1,610.0	\$1,545.0	\$1,615.0	\$1,652.0	\$1,665.0
Dry Cat Food	\$524.0	\$1,464.7	\$1,537.9	\$1,612.9	\$1,705.0	\$1,753.0	\$1,876.0	\$1,946.0	\$2,087.0	\$2,235.0	\$2,344.0	\$2,365.0
Moist Cat Food	\$191.1	\$113.2	\$110.4	\$109.0	\$102.3	\$94.6	\$91.2	\$85.1	\$77.5	\$64.0	\$53.0	\$35.0
Cat Treats	n/a	\$78.0	\$77.0	\$100.5	\$105.3	\$109.6	\$117.2	\$109.0	\$125.0	\$145.0	\$167.0	\$185.0
<i>TOTAL CAT FOOD</i>	<i>\$1,445.1</i>	<i>\$3,445.3</i>	<i>\$3,636.0</i>	<i>\$3,832.3</i>	<i>\$3,493.2</i>	<i>\$3,492.2</i>	<i>\$3,630.4</i>	<i>\$3,750.1</i>	<i>\$3,834.5</i>	<i>\$4,059.0</i>	<i>\$4,216.0</i>	<i>\$4,250.0</i>
TOTAL DOG & CAT FOOD	\$4,427.1	\$8,458.1	\$8,809.6	\$9,133.4	\$9,670.2	\$9,965.3	\$10,473.9	\$10,812.1	\$11,142.5	\$11,808.0	\$12,352.0	\$12,550.0

* Figures prior to 1991 include retail grocery sales only. From 1991 on, figures include estimated retail sales from all points of sales.

Source: NPD Group, Inc.

The key fact here is that the dry dog food and dry cat food industry continues to expand and is starting, under the North American Free Trade Agreement, to explore new foreign markets. The use of local California corn is also well established in this industry.

7.6-3 The California Ethanol Industry

There is a growing focus in all farm states on the development of alternate fuel product. Local corn production has, in other states, benefited from requirements that provide incentives for deriving production from local biomass such as corn. Ethanol continues to be one of the major fuels leading to alternative fuels such as E-85 (85% ethanol) for use in cars and light trucks. The California legislature has passed laws that allow for subsidies to given on fuel production utilizing locally grown crop base. California has not however, as the writing of this report, provided funding for this program.

There are several recently announced plants being brought on line in California around the corn producing areas.

CALIFORNIA CODES
PUBLIC RESOURCES CODE
SECTION 25678-25679

25678. The commission shall establish a grant program which provides a forty cent (\$0.40) per gallon production incentive for liquid fuels fermented in this state from biomass and biomass-derived resources produced in this state. Eligible liquid fuels include, but are not limited to, **ethanol**, methanol, and vegetable oils. Eligible biomass resources include, but are not limited to, agricultural products and byproducts, forestry products and byproducts, and industrial wastes.

The commission shall adopt rules and regulations necessary to implement the program. Prior to determining an applicant eligible for participation in the production incentive program, the commission shall find, among other things, that the production techniques employed will lead to a net increase in the amount of energy available for consumption.

25679. Applicants for a grant under this chapter shall submit an application on a form prescribed by the commission which is responsible for administration of the program.

7.6-4 Future Analysis and Studies May Be Warranted

In the many conversations and discussion groups held by the writers of this analysis, it was found that the subject of Identity Preserved markets were one of continuing and growing interests. IP marketing of corn may be one of factors that would produce higher contracted netbacks to local California growers. The logistics, marketing, forward contracting and present and future marketing potentials of IP corn were beyond the purview of this study however, the marketing and market potential of IP marketing seems to be growing and has caught the interest of California corn growers as well as other commodities growers such as cotton seed.

SECTION VIII: Corn Rail Freight Rate Analysis

8.1 Understanding the U.S. Rail Freight Rail System

There are four major North American railroads involved in the movement of corn from the Western U.S. and the Canadian prairies.

The UP controls movements out of the central plains.



The BNSF controls the movements from Montana, North Dakota, South Dakota and parts of Minnesota.

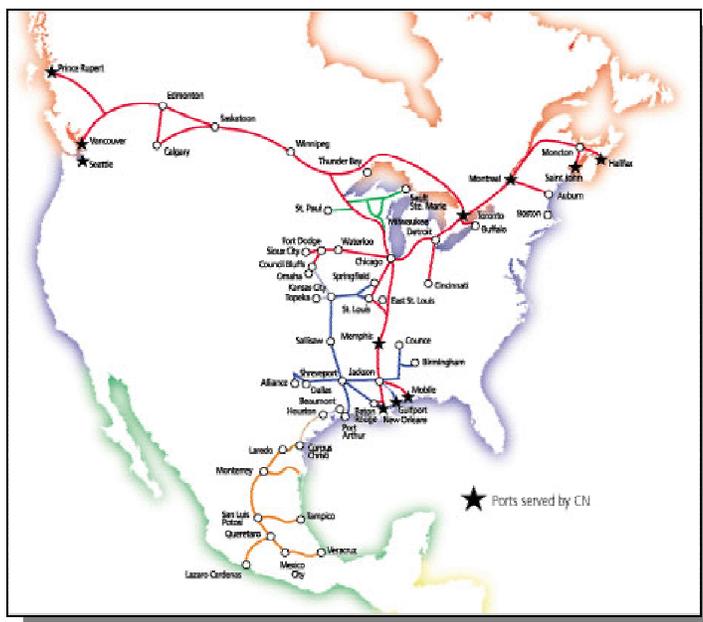


Both the BNSF and UP have access competitively to corn production areas in the central plains in Nebraska, Iowa, Oklahoma, and Colorado.

The Canadian Pacific (which owns the SOO line in the U.S.) does move through North Dakota and has control over the southern Canadian corn growing areas – albeit small.



The Canadian National (CN), with its recent purchase of Wisconsin Central and the Illinois Central has an uninterrupted rail path to the Mexican railroad TFM through its marketing relationships with the Kansas City Southern (KCS) and.



8.2 U.S. Railroad Industry Profile and Cost Structures

The railroad industry is characterized by high fixed costs and low marginal costs. The high fixed costs act as a barrier to new entries. This economic profile is associated with the concept of a natural monopoly, which is why the U.S. and Canada have chosen some form of economic regulatory oversight for the last 100 years. All major western railroads serve an array of agricultural rail customers some of which have transportation alternatives, and many who do not. When railroads have competition, their rates are constrained to levels above their variable costs but many times not full costs. In the absence of inter- or intra-modal competition, railroads price above the average costs to make up for areas where they have competition. This costing methodology is known as “differential pricing” in the industry, but unlike every other industry that practices some sort of differential pricing, the railroads differential pricing is not based upon consumer demand but rather on “degree of captivity”. Consequently, the railroads operated under rather extensive government regulation, up until 1980, to ensure fair pricing and service.

The Staggers Rail Act of 1980 was an attempt by Congress to deregulate the railroads similar to what Congress had already done in the airline and motor carrier industries. In 1980 there were over 40 Class I railroads (the largest class of railroad defined by the Surface Transportation Board in 2000 as having more than \$260 million in operating revenue), ensuring adequate competition. Today, after a series of major mergers there are only seven Class I's and the four major Class I's (BNSF, UP, CSX & Norfolk Southern) control over 95% of the rail business in this country. The Staggers Rail Act permits differential pricing but the STB is required to ‘adjust’ unreasonable rates. There continues to be frustration by many major shippers over the complexity and adjudication or lack thereof of rate adjudications since the passage of the Staggers Rail Act.

How profitable are corn freight rates for the railroads? Costing a rail movement requires knowledge of rail cost inputs – what it costs a railroad to move a commodity. The Surface Transportation Board (STB), which oversees regulatory aspects of the nation's railroads has developed a rail costing system called the Uniform Rail Costing System (URCS).

Rail costs are measured in terms of ‘variable’ cost. Variable costs are exactly what one would consider them to be, namely those costs that vary with output or production. On a railroad, 100% of variable cost would be that level at which just the variable costs are being met, but the fixed costs are not being met. Generally, a railroad is considered to be covering its full costs with return at about 140% of variable costs. The STB has set a rate level of greater than 180% of variable to be the level above which rates are considered *prima facie* unreasonable. Namely the STB will entertain rate complaints at rate levels above that level. Many economists believe that ‘full cost’ on a railroad occurs around 130-150% of variable costs.

Rail rates in captive rail areas (area of inadequate or non-existent rail competition) are generally found to be above 180% of revenue to variable costs with some rail rates on grain running as much as 300+% revenue to variable cost. Rail rates in competitive areas run consistently below 140% of variable.

8.3 U.S. Corn Rail Rate Analysis

The Major Corn Movements in U.S.:

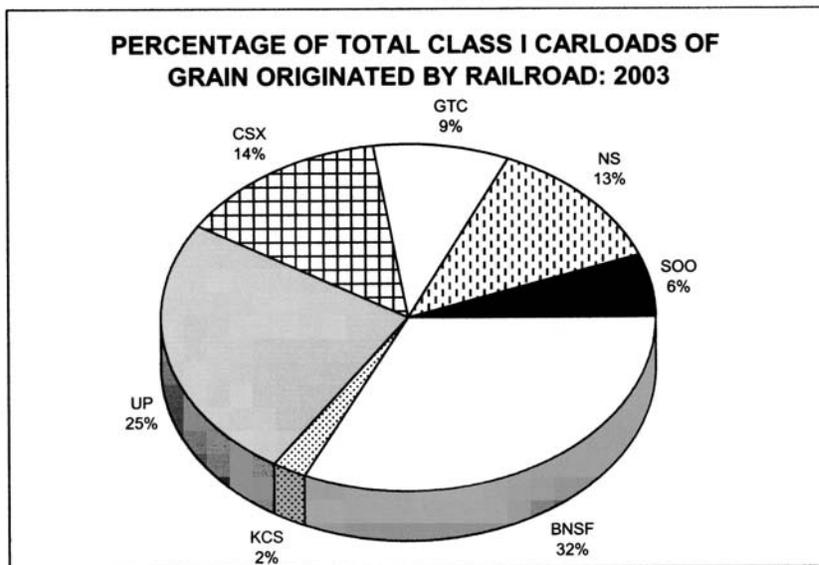
According to USDA supply and demand balance sheets (average during past three marketing years), about 24% of U.S. corn movement (Source: USDA) is moved via rail for both domestic and international markets. This analysis looks at all rail movements into and from the major production areas in the U.S.

Based upon the 2003 Surface Transportation Board's 2% way bill samples and analysis of the Business Economic Units covering the corn belt for movements into the central CA BEA's, as defined by the Commerce Department, it is estimated that the BEA's in Iowa and Nebraska shipped via UP about 13,000 carloads of corn estimated at about 1,920,000 tons into central CA in a twelve month period.

The UP, according to the American Association of Railroads (AAR) hauled 25% of the carloads of grain in the United States in 2003 – 336,542 carloads. The BNSF hauled about 437,645 carloads of grain in the same period (32%).

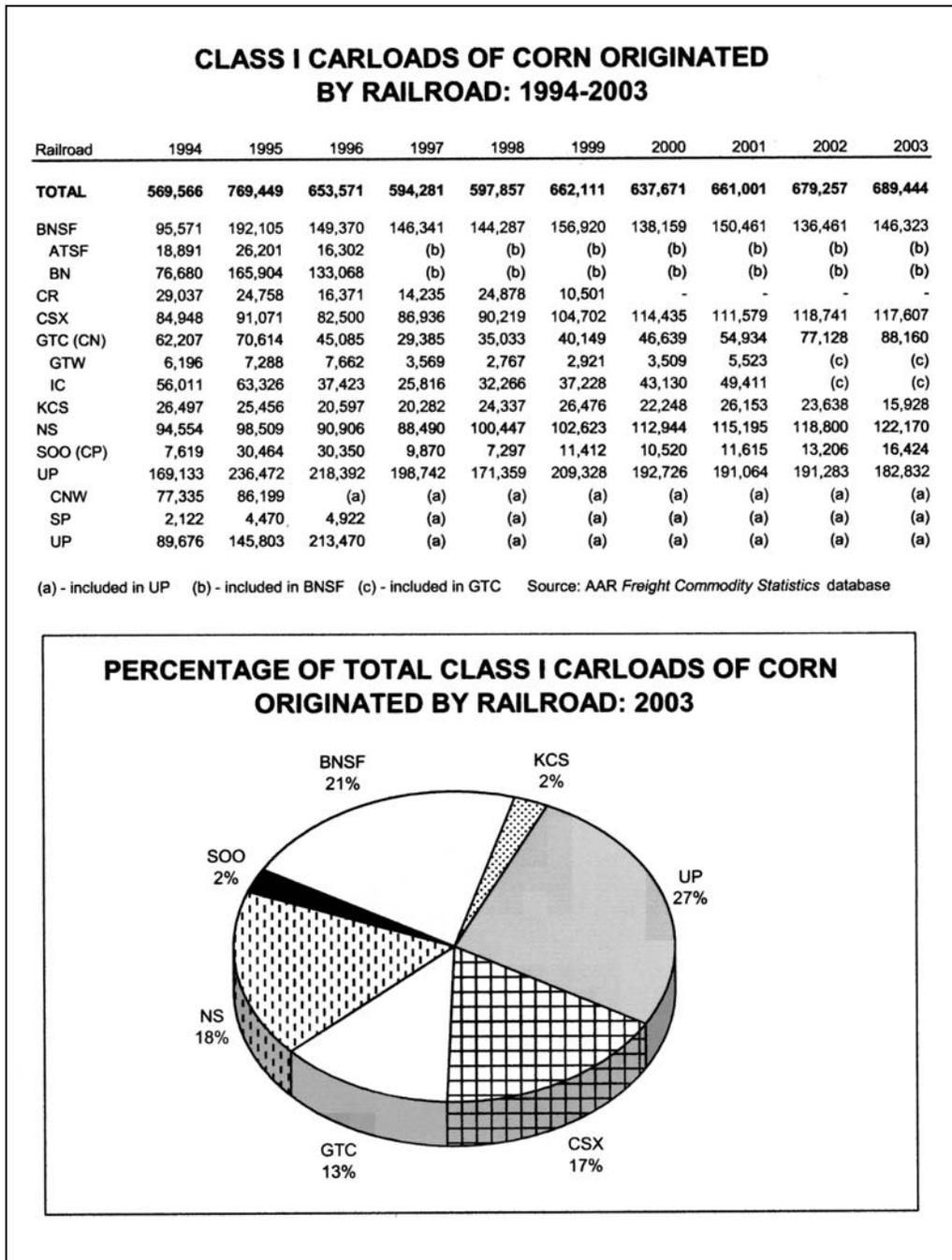
CLASS I CARLOADS OF GRAIN ORIGINATED BY RAILROAD: 1994-2003										
Railroad	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
TOTAL	1,276,966	1,508,208	1,359,093	1,234,099	1,239,668	1,332,901	1,293,567	1,312,934	1,321,897	1,365,336
BNSF	425,382	507,609	437,894	407,096	431,428	461,267	424,394	430,396	401,208	437,645
ATSF	94,718	97,257	66,371	(b)						
BN	330,664	410,352	371,523	(b)						
CR	44,151	39,201	34,574	31,249	41,164	15,388	-	-	-	-
CSX	126,298	139,506	126,499	131,621	137,076	166,841	188,632	185,539	189,711	191,600
GTC (CN)	93,625	103,572	73,223	52,502	49,890	56,384	66,662	74,683	106,692	118,661
GTW	8,708	10,757	11,264	5,995	3,980	4,064	4,876	7,166	(c)	(c)
IC	84,917	92,815	61,959	46,507	45,910	52,320	61,786	67,517	(c)	(c)
KCS	44,390	43,620	34,284	34,011	34,667	32,786	27,528	36,610	36,425	29,016
NS	136,346	141,783	130,770	126,600	135,488	137,897	154,892	163,168	166,095	171,886
SOO (CP)	37,553	107,247	94,400	70,465	65,166	63,594	66,141	74,360	74,409	79,986
UP	369,221	425,670	427,449	380,555	344,789	398,744	365,318	348,178	347,357	336,542
CNW	116,159	112,485	(a)							
SP	25,662	30,762	37,687	(a)						
UP	227,400	282,423	389,762	(a)						

(a) - included in UP (b) - included in BNSF (c) - included in GTC Source: AAR Freight Commodity Statistics database



Source: American Association of Railroads (AAR)

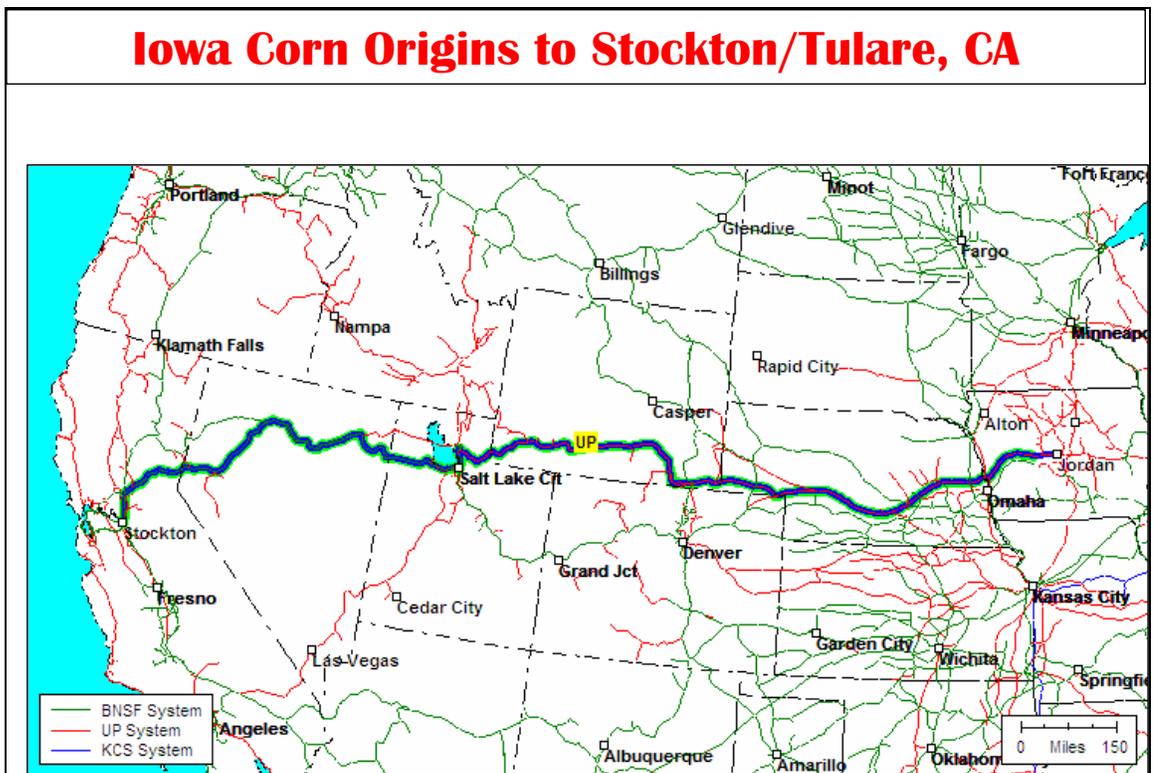
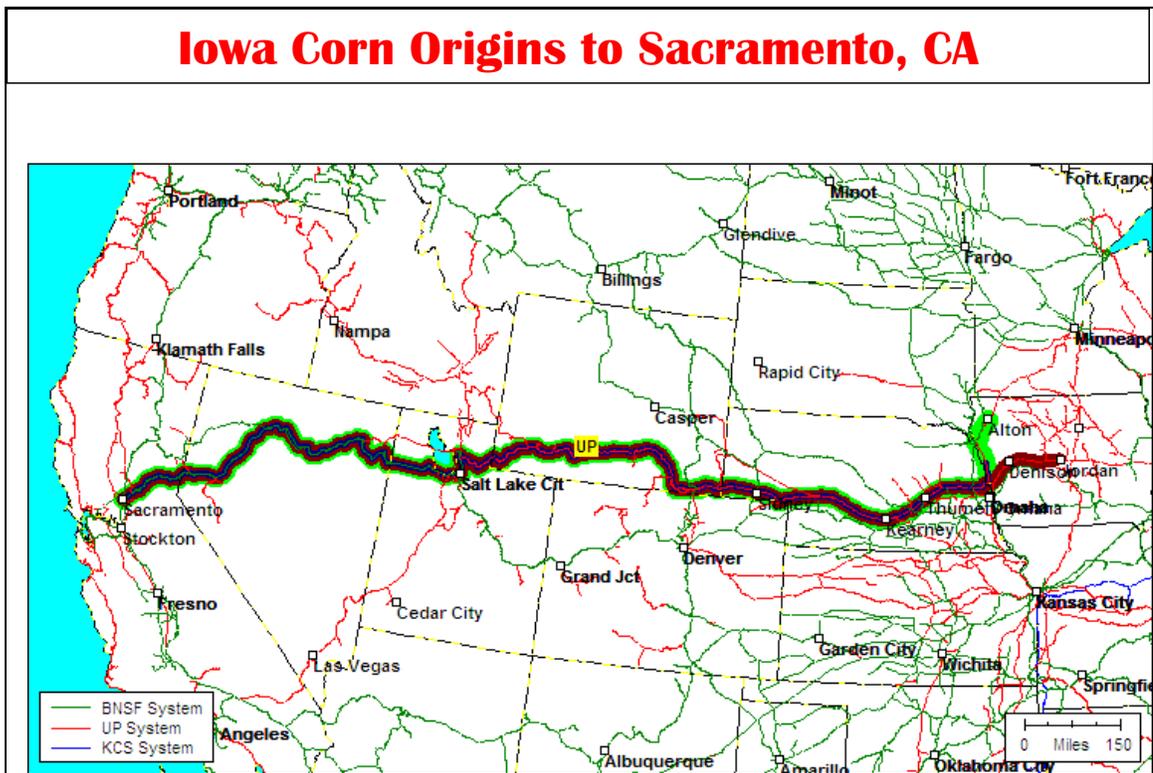
8.4 Corn movements by Railroad:



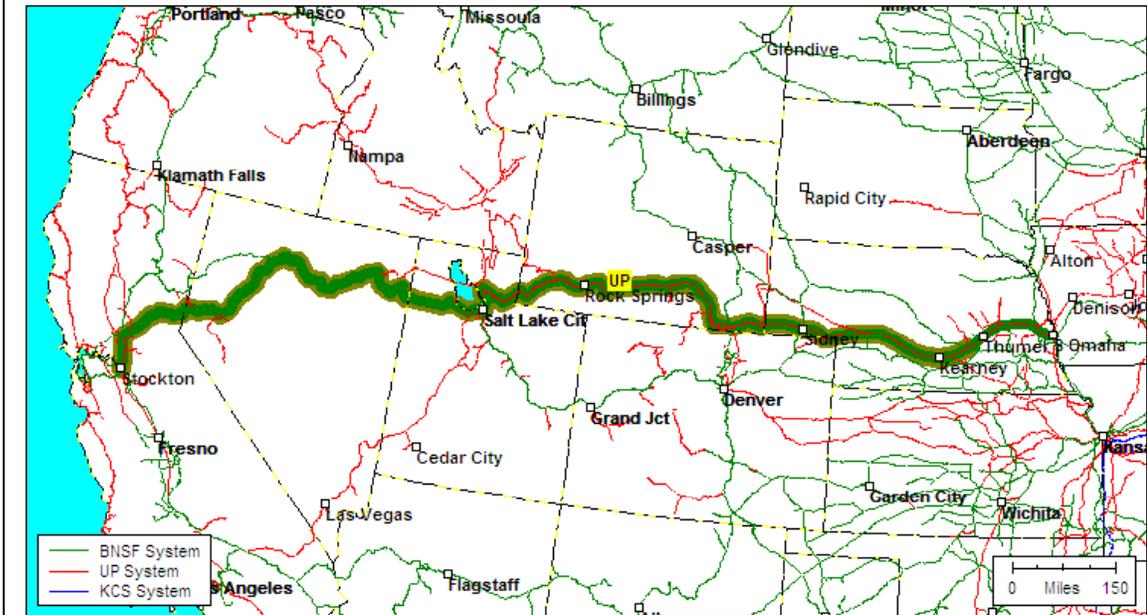
Source: AAR

When evaluated for corn movements specifically, in 2003, the UP handled 182,832 carloads of corn (27%) while the BNSF moved 146,223 carloads (21%) in 2003. The UP and BNSF together handled over 48% of the U.S. corn movement. Of course, during any given year, the rail transportation of corn (and all grains) can vary. The volume of grain transported by rail varies considerably. That is one reason the long-

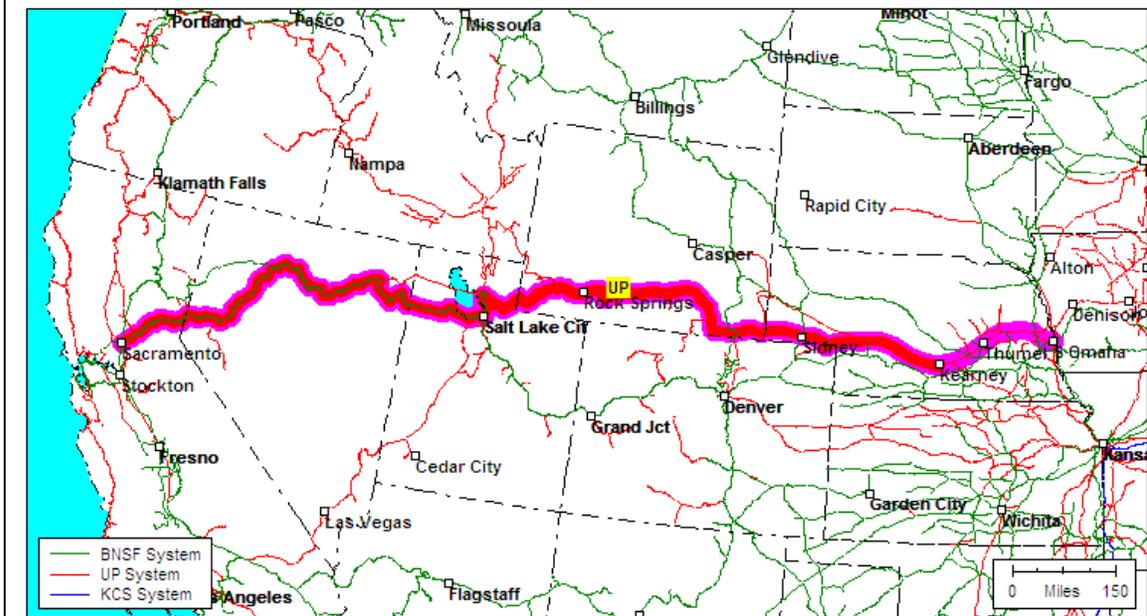
term supply (such as the Iowa-California movement) of the feed market by railroads is so desirable. It provides year round and more or less consistent movement



Nebraska Corn Origins to Stockton/Tulare, CA



Nebraska Corn Origins to Sacramento, CA



The analysis developed rate maps to indicate rail rate levels into various major price-setting markets. Using the Uniform Rail Costing System (URCS) costing model explained above, the rail rates on corn movements into California feed market were found to be moving at Revenue to Variable cost levels that do not yield full costs to the UP. However, they are moving at rate levels that fully cover variable costs.

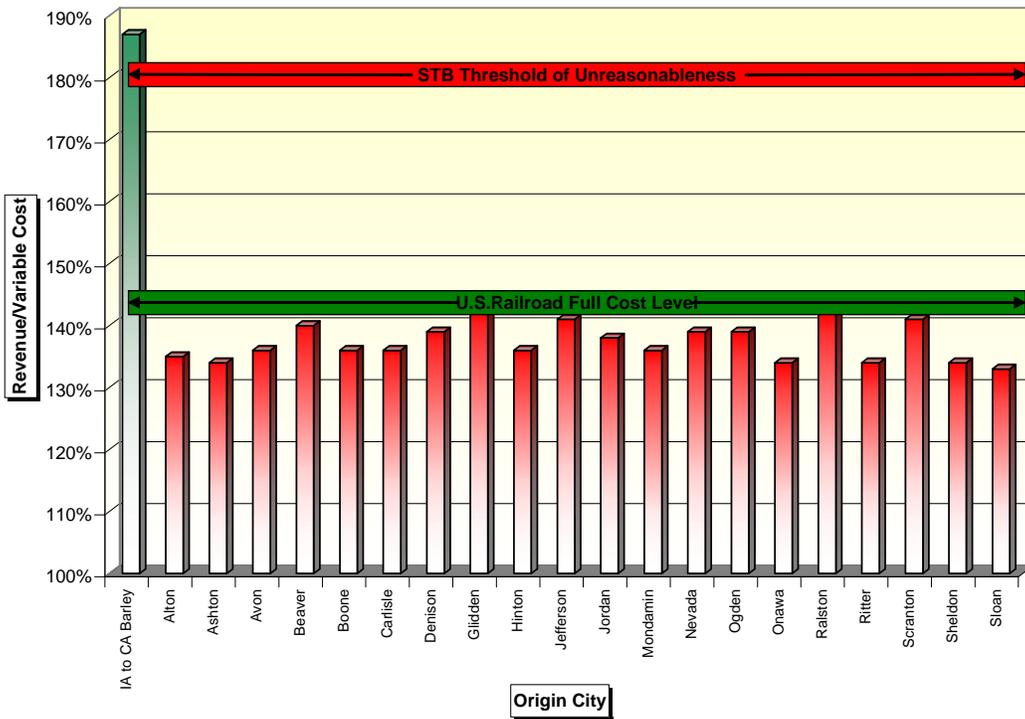
The rate tariff rates deliver central prairie based corn into the central California markets for 60-70 cents per bushel.

The graphs below show the impact of the low rail freight rates moving the corn movements. For comparison purposes, the corn rates are compared with local feed barley rates to the same central California markets.

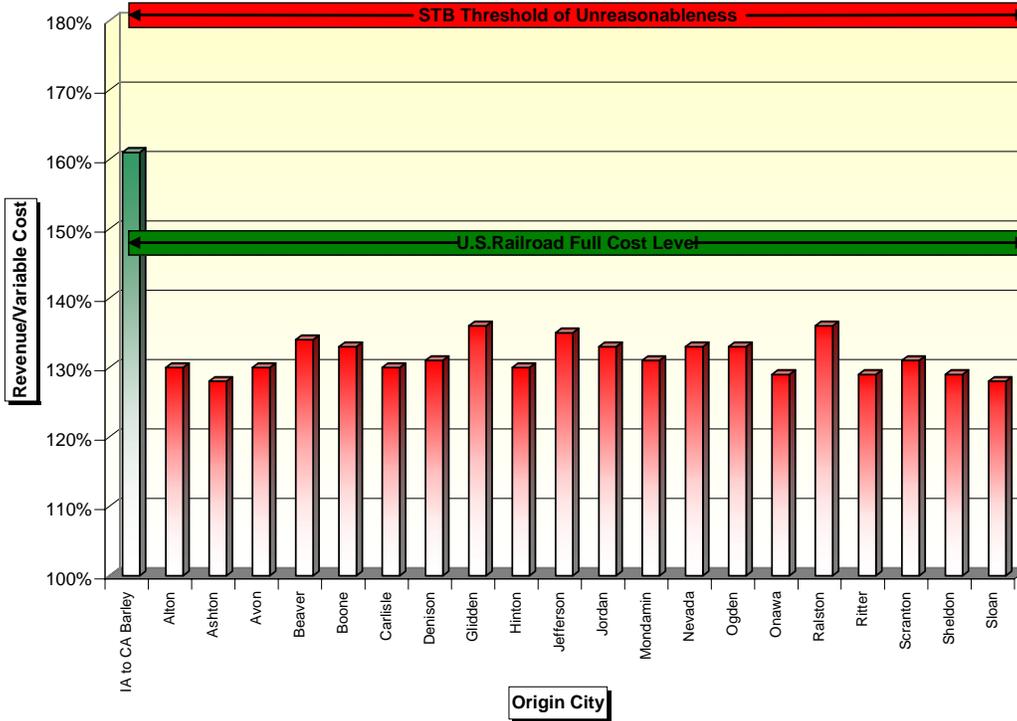
CORN RATES FROM IOWA TO SACRAMENTO CA								
Mar-05								
		UP	69-91 Light Car			69-91 Heavy Car		
			1-206,000 lbs			206,001-242,000 lbs		
IOWA	MILEAGE	RR	\$/CAR	\$/BU	Rev/Var Cost	\$/CAR	\$/BU	Rev/Var Cost
Alton	1845	UP	\$2,920	\$0.78	135%	\$3,170	\$0.72	130%
Ashton	1871	UP	\$2,920	\$0.78	134%	\$3,170	\$0.72	128%
Avon	1933	UP	\$3,060	\$0.82	136%	\$3,310	\$0.75	130%
Beaver	1850	UP	\$3,020	\$0.81	140%	\$3,270	\$0.74	134%
Boone	1936	UP	\$3,020	\$0.81	136%	\$3,270	\$0.74	133%
Carlisle	1936	UP	\$3,060	\$0.82	136%	\$3,310	\$0.75	130%
Denison	1864	UP	\$2,840	\$0.76	139%	\$3,090	\$0.70	131%
Glidden	1819	UP	\$3,020	\$0.81	142%	\$3,270	\$0.74	136%
Hinton	1815	UP	\$2,880	\$0.77	136%	\$3,130	\$0.71	130%
Jefferson	1838	UP	\$3,020	\$0.81	141%	\$3,270	\$0.74	135%
Jordan	1868	UP	\$3,020	\$0.81	138%	\$3,270	\$0.74	133%
Mondamin	1745	UP	\$2,780	\$0.74	136%	\$3,030	\$0.69	131%
Nevada	1886	UP	\$3,060	\$0.82	139%	\$3,310	\$0.75	133%
Ogden	1855	UP	\$3,020	\$0.81	139%	\$3,270	\$0.74	133%
Onawa	1767	UP	\$2,780	\$0.74	134%	\$3,030	\$0.69	129%
Ralston	1824	UP	\$3,020	\$0.81	142%	\$3,270	\$0.74	136%
Ritter	1866	UP	\$2,920	\$0.78	134%	\$3,170	\$0.72	129%
Scranton	1828	UP	\$3,020	\$0.81	141%	\$3,270	\$0.74	131%
Sheldon	1862	UP	\$2,920	\$0.78	134%	\$3,170	\$0.72	129%
Sloan	1783	UP	\$2,780	\$0.74	133%	\$3,030	\$0.69	128%

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UP Corn Rates- Light Cars - Iowa to Sacramento - Revenue to Variable Cost



UP Corn Rates- Heavy Cars - Iowa to Sacramento - Revenue to Variable Cost



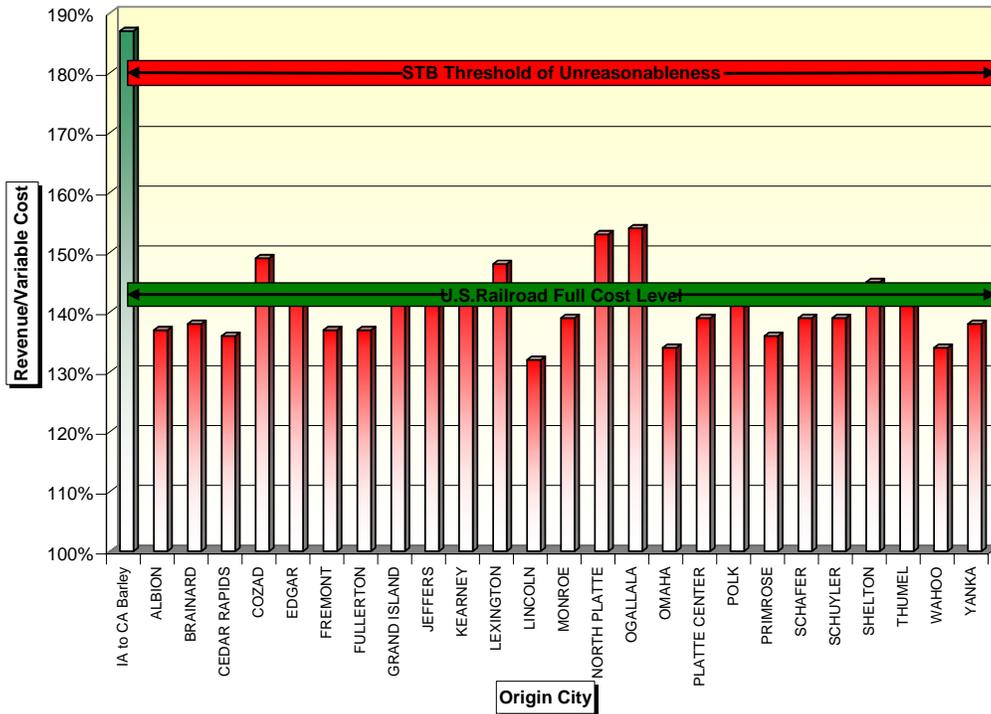
CORN RATES FROM NEBRASKA TO SACRAMENTO CA

Mar-05

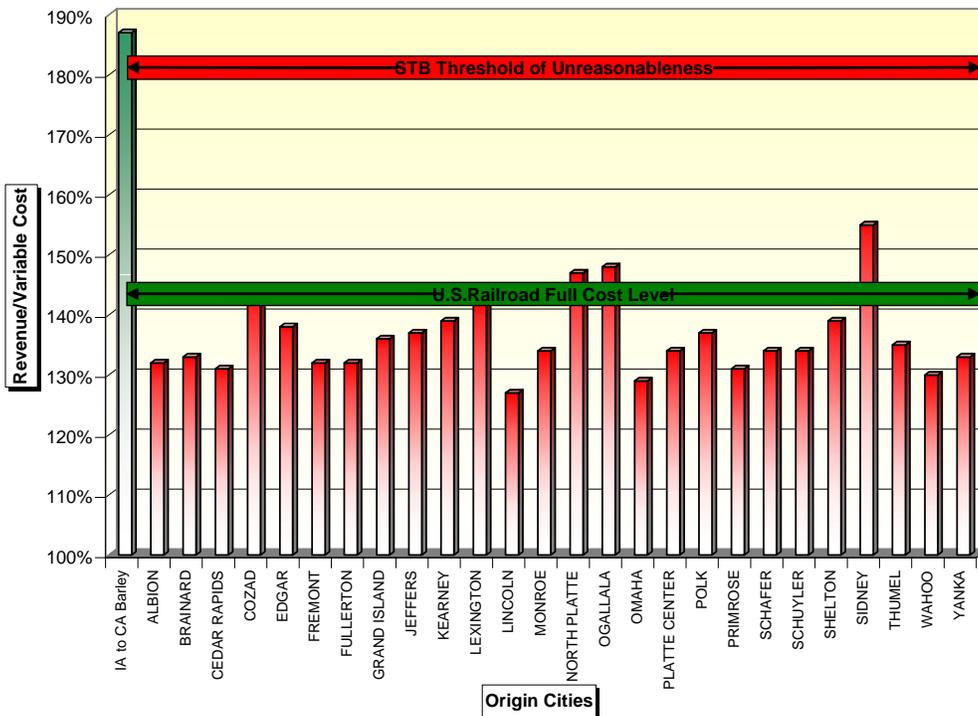
NEBRASKA	MILEAGE	UP	69-91 Light Car			69-91 Heavy Car		
			1-206,000 lbs			206,001-242,000 lbs		
			\$/CAR	\$/BU	Rev/Var Cost	\$/CAR	\$/BU	Rev/Var Cost
ALBION	1702	UP	\$2,734	\$0.73	137%	\$2,984	\$0.68	132%
BELGRADE	1702	UP	\$2,734	\$0.73	137%	\$2,984	\$0.68	132%
BRADY	1481	UP	\$2,654	\$0.71	151%	\$2,904	\$0.66	146%
BRAINARD	1680	UP	\$2,734	\$0.73	138%	\$2,984	\$0.68	134%
BRULE	1400	UP	\$2,584	\$0.69	155%	\$2,834	\$0.64	150%
BUSHNELL	1287	UP	\$2,584	\$0.69	167%	\$2,834	\$0.64	162%
CARLETON	1641	UP	\$2,734	\$0.73	141%	\$2,984	\$0.68	137%
CEDAR RAPIDS	1710	UP	\$2,734	\$0.73	136%	\$2,984	\$0.68	131%
CHAPMAN	1608	UP	\$2,694	\$0.72	142%	\$2,944	\$0.67	137%
CHAPPELL	1363	UP	\$2,584	\$0.69	159%	\$2,834	\$0.64	154%
CLARKS	1630	UP	\$2,694	\$0.72	140%	\$2,944	\$0.67	136%
COLUMBUS	1659	UP	\$2,694	\$0.72	138%	\$2,944	\$0.67	133%
COZAD	1505	UP	\$2,654	\$0.71	149%	\$2,904	\$0.66	144%
EDGAR	1672	UP	\$2,734	\$0.73	143%	\$2,984	\$0.68	138%
ENOLA	1700	UP	\$2,734	\$0.73	137%	\$2,984	\$0.68	132%
FAIRFIELD	1616	UP	\$2,734	\$0.73	144%	\$2,984	\$0.68	139%
FREMONT	1703	UP	\$2,734	\$0.73	137%	\$2,984	\$0.68	132%
FULLERTON	1694	UP	\$2,734	\$0.73	137%	\$2,984	\$0.68	133%
GIBBON	1568	UP	\$2,694	\$0.72	145%	\$2,944	\$0.67	141%
GOTHENBURG	1494	UP	\$2,654	\$0.71	150%	\$2,904	\$0.66	145%
GRAND ISLAND	1597	UP	\$2,694	\$0.72	143%	\$2,944	\$0.67	138%
HASTINGS	1593	UP	\$2,694	\$0.72	143%	\$2,944	\$0.67	138%
HERSHEY	1446	UP	\$2,584	\$0.69	150%	\$2,834	\$0.64	146%
HUMPHREY	1685	UP	\$2,734	\$0.73	138%	\$2,984	\$0.68	133%
JEFFERS	1603	UP	\$2,694	\$0.72	142%	\$2,944	\$0.67	138%
KEARNEY	1554	UP	\$2,654	\$0.71	144%	\$2,904	\$0.66	140%
KIMBALL	1299	UP	\$2,584	\$0.69	166%	\$2,834	\$0.64	161%
LEXINGTON	1519	UP	\$2,654	\$0.71	148%	\$2,904	\$0.66	143%
LINCOLN	1773	UP	\$2,734	\$0.73	132%	\$2,984	\$0.68	127%
LODGEPOLE	1353	UP	\$2,584	\$0.69	160%	\$2,834	\$0.64	155%
MEAD	1727	UP	\$2,734	\$0.73	135%	\$2,984	\$0.68	130%
MONROE	1673	UP	\$2,734	\$0.73	139%	\$2,984	\$0.68	134%
NORTH BEND	1689	UP	\$2,734	\$0.73	134%	\$2,984	\$0.68	133%
NORTH PLATTE	1456	UP	\$2,654	\$0.71	153%	\$2,904	\$0.66	148%
OGALLALA	1410	UP	\$2,584	\$0.69	154%	\$2,834	\$0.64	149%
OMAHA	1742	UP	\$2,734	\$0.73	134%	\$2,984	\$0.68	129%
OSCEOLA	1646	UP	\$2,734	\$0.73	141%	\$2,984	\$0.68	136%
PAXTON	1427	UP	\$2,584	\$0.69	152%	\$2,834	\$0.64	148%
PLATTE CENTER	1674	UP	\$2,734	\$0.73	139%	\$2,984	\$0.68	134%
POLK	1630	UP	\$2,734	\$0.73	142%	\$2,984	\$0.68	137%
POTTER	1318	UP	\$2,584	\$0.69	164%	\$2,834	\$0.64	159%
PRIMROSE	1716	UP	\$2,734	\$0.73	136%	\$2,984	\$0.68	131%
RICHLAND	1666	UP	\$2,734	\$0.73	139%	\$2,984	\$0.68	135%
ROSCOE	1415	UP	\$2,584	\$0.69	153%	\$2,834	\$0.64	149%
SCHAFFER	1643	UP	\$2,694	\$0.72	139%	\$2,944	\$0.67	135%
SCHUYLER	1674	UP	\$2,734	\$0.73	139%	\$2,984	\$0.68	134%
SHELTON	1573	UP	\$2,694	\$0.72	145%	\$2,944	\$0.67	140%
SIDNEY	1335	UP	\$2,584	\$0.69	162%	\$2,834	\$0.64	157%
THOMEL	1625	UP	\$2,694	\$0.72	141%	\$2,944	\$0.67	136%
WAHOO	1735	UP	\$2,734	\$0.73	134%	\$2,984	\$0.68	130%
WOOD RIVER	1581	UP	\$2,694	\$0.72	144%	\$2,944	\$0.67	140%
YANKA	1680	UP	\$2,734	\$0.73	138%	\$2,984	\$0.68	134%

UP Rates from UP-4051-B Item 2306.000-AB Eff: 01/25/2005
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UP Corn Rates- Light Cars - Nebraska to Sacramento - Revenue to Variable Cost



UP Corn Rates- Light Cars - Nebraska to Stockton/Tulare - Revenue to Variable Cost

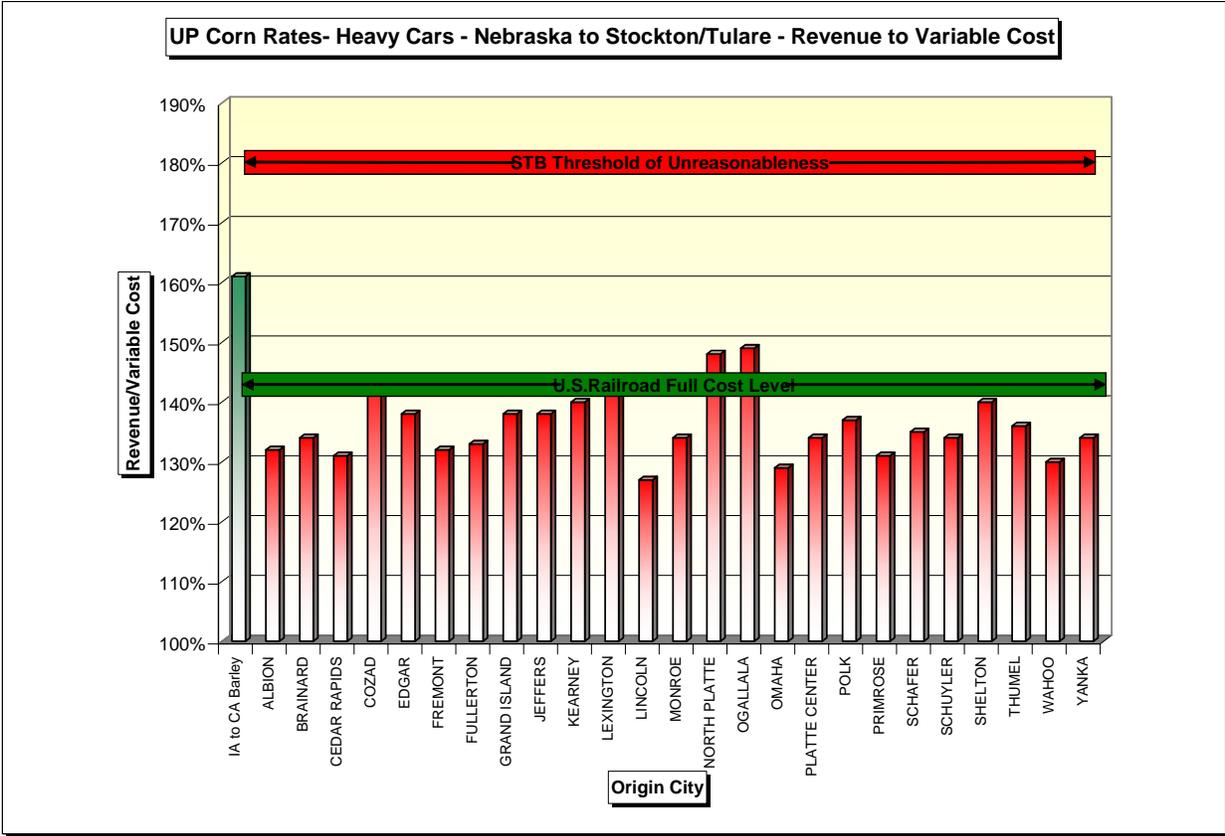


CORN RATES FROM NEBRASKA TO STOCKTON/TULARE CA

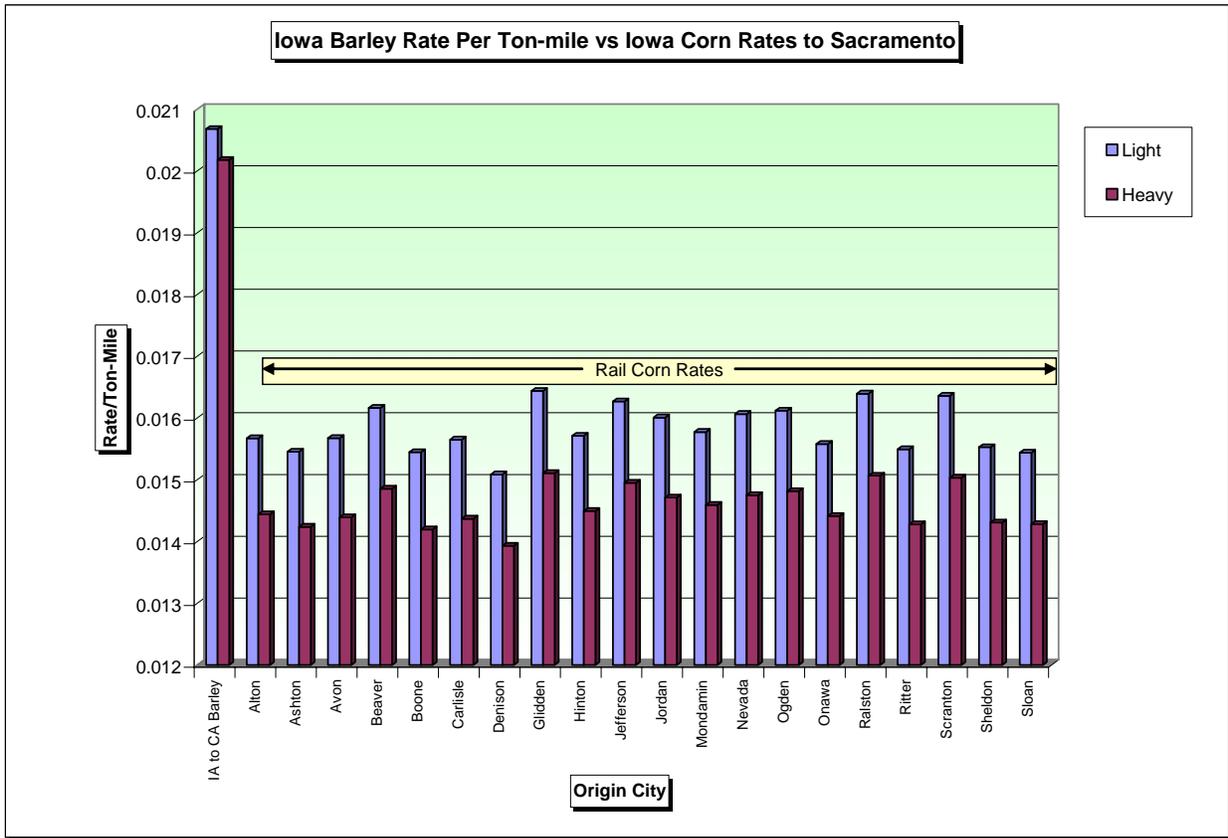
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NEBRASKA	MILEAGE	UP	69-91 Light Car			69-91 Heavy Car		
			1-206,000 lbs			206,001-242,000 lbs		
			\$/CAR	\$/BU	Rev/Var Cost	\$/CAR	\$/BU	Rev/Var Cost
ALBION	1747	UP	\$2,700	\$0.72	132%	\$2,950	\$0.67	127%
BELGRADE	1747	UP	\$2,700	\$0.72	132%	\$2,950	\$0.67	127%
BELVIDERE	1692	UP	\$2,700	\$0.72	136%	\$2,950	\$0.67	131%
BRADY	1526	UP	\$2,620	\$0.70	145%	\$2,870	\$0.65	141%
BRAINARD	1724	UP	\$2,700	\$0.72	133%	\$2,950	\$0.67	129%
BRULE	1444	UP	\$2,550	\$0.68	149%	\$2,800	\$0.64	144%
BUSHNELL	1331	UP	\$2,550	\$0.68	160%	\$2,800	\$0.64	155%
CARLETON	1686	UP	\$2,700	\$0.72	136%	\$2,950	\$0.67	132%
CEDAR RAPIDS	1754	UP	\$2,700	\$0.72	131%	\$2,950	\$0.67	127%
CHAPMAN	1652	UP	\$2,660	\$0.71	137%	\$2,910	\$0.66	132%
CHAPPELL	1407	UP	\$2,550	\$0.68	152%	\$2,800	\$0.64	148%
CLARKS	1674	UP	\$2,660	\$0.71	141%	\$2,910	\$0.66	131%
COLUMBUS	1703	UP	\$2,660	\$0.71	133%	\$2,910	\$0.66	129%
COZAD	1549	UP	\$2,620	\$0.70	143%	\$2,870	\$0.65	139%
EDGAR	1667	UP	\$2,700	\$0.72	138%	\$2,950	\$0.67	133%
ENOLA	1744	UP	\$2,700	\$0.72	132%	\$2,950	\$0.67	128%
FAIRFIELD	1660	UP	\$2,700	\$0.72	138%	\$2,950	\$0.67	134%
FREMONT	1747	UP	\$2,700	\$0.72	132%	\$2,950	\$0.67	127%
FULLERTON	1738	UP	\$2,700	\$0.72	132%	\$2,950	\$0.67	128%
GIBBON	1612	UP	\$2,660	\$0.71	140%	\$2,910	\$0.66	135%
GOTHENBURG	1538	UP	\$2,620	\$0.70	144%	\$2,870	\$0.65	139%
GRAND ISLAND	1641	UP	\$2,660	\$0.71	136%	\$2,910	\$0.66	133%
HASTINGS	1638	UP	\$2,660	\$0.71	138%	\$2,910	\$0.66	133%
HERSHEY	1490	UP	\$2,550	\$0.68	144%	\$2,800	\$0.64	140%
HUMPHREY	1729	UP	\$2,700	\$0.72	133%	\$2,950	\$0.67	129%
JEFFERS	1647	UP	\$2,660	\$0.71	137%	\$2,910	\$0.66	133%
KEARNEY	1598	UP	\$2,620	\$0.70	139%	\$2,870	\$0.65	135%
KIMBALL	1344	UP	\$2,550	\$0.68	159%	\$2,800	\$0.64	154%
LEXINGTON	1563	UP	\$2,620	\$0.70	142%	\$2,870	\$0.65	137%
LINCOLN	1817	UP	\$2,700	\$0.72	127%	\$2,950	\$0.67	123%
LODGEPOLE	1397	UP	\$2,550	\$0.68	153%	\$2,800	\$0.64	149%
MEAD	1772	UP	\$2,700	\$0.72	130%	\$2,950	\$0.67	126%
MONROE	1717	UP	\$2,700	\$0.72	134%	\$2,950	\$0.67	129%
NORTH BEND	1733	UP	\$2,700	\$0.72	133%	\$2,950	\$0.67	128%
NORTH PLATTE	1500	UP	\$2,620	\$0.70	147%	\$2,870	\$0.65	143%
OGALLALA	1454	UP	\$2,550	\$0.68	148%	\$2,800	\$0.64	143%
OMAHA	1786	UP	\$2,700	\$0.72	129%	\$2,950	\$0.67	125%
OSCEOLA	1690	UP	\$2,700	\$0.72	136%	\$2,950	\$0.67	131%
PAXTON	1471	UP	\$2,550	\$0.68	146%	\$2,800	\$0.64	142%
PLATTE CENTER	1718	UP	\$2,700	\$0.72	134%	\$2,950	\$0.67	129%
POLK	1675	UP	\$2,700	\$0.72	137%	\$2,950	\$0.67	133%
POTTER	1362	UP	\$2,550	\$0.68	157%	\$2,800	\$0.64	152%
PRIMROSE	1760	UP	\$2,700	\$0.72	131%	\$2,950	\$0.67	126%
RICHLAND	1711	UP	\$2,700	\$0.72	134%	\$2,950	\$0.67	130%
ROSCOE	1459	UP	\$2,550	\$0.68	147%	\$2,800	\$0.64	143%
SCHAFFER	1687	UP	\$2,660	\$0.71	134%	\$2,910	\$0.66	130%
SCHUYLER	1718	UP	\$2,700	\$0.72	134%	\$2,950	\$0.67	129%
SHELTON	1617	UP	\$2,660	\$0.71	139%	\$2,910	\$0.66	135%
SIDNEY	1379	UP	\$2,550	\$0.68	155%	\$2,800	\$0.64	150%
THUMEL	1669	UP	\$2,660	\$0.71	135%	\$2,910	\$0.66	131%
WAHOO	1779	UP	\$2,700	\$0.72	130%	\$2,950	\$0.67	125%
YANKA	1724	UP	\$2,700	\$0.72	133%	\$2,950	\$0.67	129%

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From Nebraska origins: 123-155% of variable cost – generally below 135%
 From Iowa origins: 120-135% of variable cost – generally below 135%



It should be noted that in some of the Iowa movements, the railroads actually charge less from more distant origins than origins that are closer to the destination. This is known as 'inverse pricing' and is a pricing practice that tends, from the growers standpoint, to distort the market by allowing non-traditional product access to a market that it would not normally participate in. A standard C6 (light – 263,000 pound car) corn rail covered hopper car will load out about 101 ton or 3700+ bushels to the car. A standard C6X (heavy – 286,000 pound car) corn rail covered hopper car will load out about 119 ton or 4400+ bushels to the car.

SECTION IX: SUMMARY AND CONCLUSIONS

The study provides a detailed comparison of U.S. and California corn supplies and transportation logistics and freight rates from Iowa and Nebraska sources to California destinations.

The railed-in corn into the California feed market in the Tulare and Stockton areas is running about four times the amount of corn that is now produced locally. The local California corn production has fallen by over 50% since 1997 and continues to decline.

The increasing corn movement by the railroads into the California market will probably continue. The estimates gathered through examination of the way bill sample data show the amount of corn being railed into San Joaquin valley of California is over 4 times larger than domestic corn production. The railroads are moving large quantities (four times local production) into the area at rail rates that are probably below their full cost but at levels that are well above their variable costs thus providing a contribution to railroad overhead. The cash flow of corn rail movements is very large – estimated to be over \$400,000,000/year for the Union Pacific Railroad system wide.

The study also provides assessment of the future implications and possibilities of developing local strategies including product differentiation to re-establish CA to some of its local markets.

Due to the large amounts of corn available in the market place, the California locally grown corn while fresher, is being forced to compete with the railed-in corn. The California corn producers are unable to supply a year round consistent supply to local feeders due to the lack of commercial or on-farm storage, however there have been some marketing efforts that have produced corn customers that are relying on local corn production for year round supply of their needs.

There are several bright spots on corn use horizon such as the dog/cat food industry, the tortilla/tostado industries, the Identity Preserve markets and the alternative fuel industry.

California corn producers need to look at ways to differentiate their local corn supply with the local feeders (freshness and phyto-sanitary issues) and look to development of infrastructure to be able to provide consistent year-round supply to be able to maintain and increase their marketing opportunities.