MINNESOTA DEPARTMENT OF
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ECONOMIC IMPACT OF THE ETHANOL INDUSTRY IN MINNESOTA

ethanol
Fuel For Clean Air

Agricultural Marketing Services Division
Minnesota Department of Agriculture

May 2003

www.mda.state.mn.us

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MINNESOTA ETHANOL STATISTICS

	2002	1990
Ethanol Production	300 million gallons	11 million gallons
Ethanol Consumption	240 million gallons	20 million gallons
Net Ethanol export/import	60 million gallons exported	9 million gallons imported
Ethanol Plants	14 plants	5 plants
Ethanol Producer Payment	$34 million	$2 million
Economic Impact		
• Output impact	$588 million	$29 million
• Employment impact	2,564 jobs	166 jobs
Corn Production	1,052 million bushels	763 million bushels
Rank in Corn Production	No. 3	No. 4
Total Corn processing	138 million bushels	34 million bushels
Corn Processed for Ethanol	120 million bushels	4.4 million bushels
Corn Prices	$2.15/bushel	$2.17/bushel
Ethanol Prices	$1.14/gallon	$1.33/gallon

ethanol
Fuel For Clean Air

Ethanol Plants in Minnesota

Updated February 2002

"It is a goal of the state that ethanol production plants in the state attain a total annual production level of 240,000,000 gallons."

–Minnesota Statute § 41A.09, Subd. 1a.

The Minnesota Ethanol Program

A. Background:

The 20-cent ethanol producer payment legislation (1986) initially provided the security required by lenders to invest in small farmer-owned ethanol facilities. In addition to opposition from the petroleum industry, bankers were concerned that these plants could not compete in the market with large agribusiness processors. At the time, most ethanol production occurred in large mills outside the state. Minnesota corn prices were among the lowest in the country, which was an advantage for local processing.

Although these ventures have been successful to date, margins have been squeezed by periods of record high corn prices and low ethanol prices. It is hoped that ten years of payments will allow plants to retire debt, increase efficiency and develop new products and markets so they can survive the competition and price fluctuations in agricultural and petroleum markets. Unique aspects of the ethanol industry made these incentive payments necessary, but the ethanol industry is projected to contribute over $350 million in increased economic activities in the state.

Since low commodity prices are common, these new corn plants may represent a new strategy for the long-range profitability of farmers and farm communities. Vertical integration from the bottom up could allow farmers to participate in the more profitable end of agriculture. Promoting farmer investments in the processing and marketing of other crop or livestock enterprises may not require the high level of state funding as did ethanol. It is hoped that such initiatives can allow farmers to make it on their own and reduce the need for funding of farm financial crisis measures.

B. The main components of the Minnesota Ethanol Program are:

1. An oxygenated fuel statute that requires state-wide oxy-fuel (ethanol blend) use;
2. The 20 cent per-gallon ethanol producer incentive provides payment for ethanol produced;

Plus
- ♦$550 million was spent for total corn/ethanol plant construction and startup costs;
- ♦$370 million in private sector financing was contingent on local equity capital;
- ♦$180 million in local equity capital was raised by over 8,000 farmer and business members;
- ♦$200 million worth of corn is committed for processing annually by local farmers.

C. The goals of the program include:

1. To build a new market for the state's largest crop (corn);
2. To develop corn processing/ethanol production facilities in Minnesota;
3. To increase the number of New Generation Farmer Coops (NGCs). These businesses were designed to provide farmer-members greater direct cash return for their crops;
4. To replace 10 percent of imported petroleum we use for gasoline (estimated at $100 million annual savings); and
5. To help the Twin Cities Area meet U.S. EPA standards for carbon monoxide.

D. Results to date:

1. 120 million bushels of corn (12 percent of Minnesota's crop) is made into ethanol and livestock feed (2002);
2. Minnesota's 14 plants produced 300 million gallons of ethanol in 2002;
3. Twelve of Minnesota's 14 ethanol plants were organized as NGCs**;
4. Nearly 10% of our gasoline is being replaced by ethanol each year; and
5. The Twin Cities Area met EPA's carbon monoxide standard and has achieved "attainment" status (the continued use of ethanol is required to keep emissions low).

The Minnesota Ethanol Program

Ethanol Production vs. Ethanol Use

Year	Production *mm=million*	Estimated Consumption	% MN Ethanol Produced Here
1986	1 mm gal.	25 mm gal.	4% of total
1994	41 mm gal.	125 mm gal.	33% of total
2002	300 mm gal.	240+ mm gal.	100% of total

Ethanol Plants & Capacities in 2002

City & (plant name)	Capacity *gallons/year*	mm. bushel corn/year	Start-up year	New Generation Co-op** Members
Marshall (ADM)	40 million	15	1988	(Public Corp)
Morris (DENCO)	20 million	7.4	1991	345
Winnebago (Corn Plus)	40 million	14.8	1994	750
Winthrop (Heartland)	32 million	12.9	1995	692
Benson* (CVEC)	20 million	7.4	1996	850
Claremont (Al-Corn)	30 million	10.3	1996	354
Bingham Lake (Ethanol2000)	30 million	10.3	1997	241
Buffalo Lake (MN Energy)	18 million	5.5	1997	325
Melrose (Dairy Proteins)	3 million	Cheese whey	1986	(Regional Co-op)
Preston (Pro-Corn)	40 million	14.8	1998	159
Luverne (Corn-er Stone)	20 million	7.4	1998	197
Little Falls (CMEC)	20 million	7.4	1999	820
Albert Lea (Exol/Agri Resources)	40 million	14.8	1999	496
St. Paul (Gopher State Ethanol)	13 million	4.8	1999	(Public Corp)
Current TOTAL	***366 mm gal.***	***133 mm bu.***		**5,229**

Processing corn products instead of exporting corn as raw commodity adds value to each bushel of corn. In addition to fuel ethanol, corn plants also produce high-protein livestock feeds plus other products such as corn sweeteners, starch, and carbon dioxide.

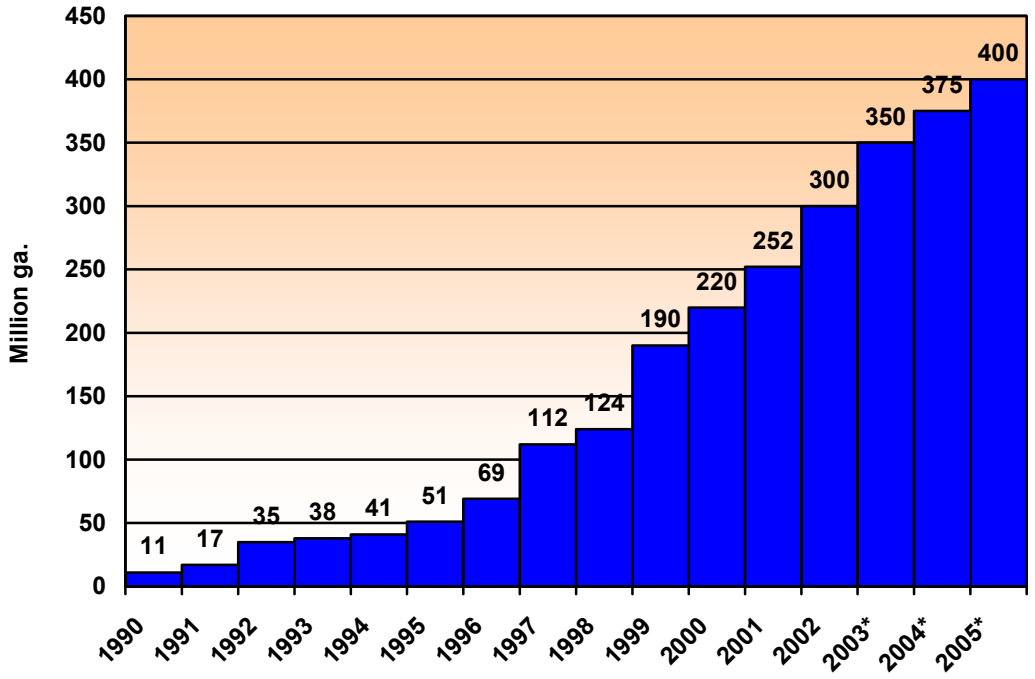
* Benson plant will add 20 million gallons by 2004.

** Plants organized as New Generation Farmer Co-ops (NGC) may be combined with, converted to or organized as limited liability companies or partnerships that are generally designed to:

1) be built by farmers and local businessmen to process member crops;
2) return more cash to farmers than conventional markets would provide;
3) be controlled by farmer/local board members so that member profits remain a top priority; and
4) create a stable source of local jobs and economic development.

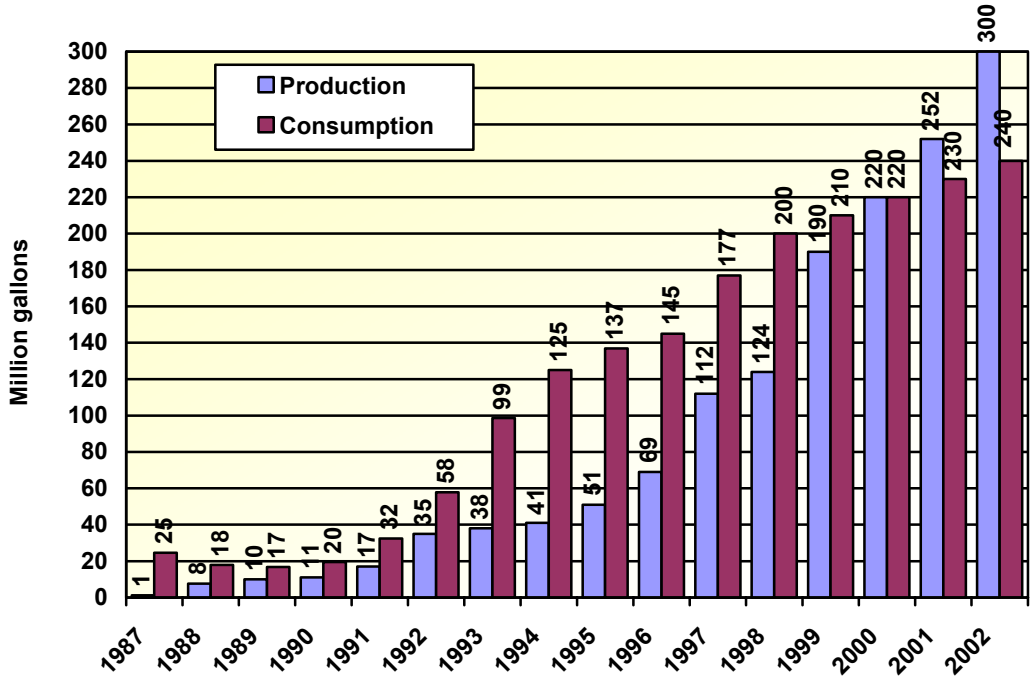
Minnesota Ethanol Production Trend

Fiscal Year: July 1-June 30



**2003-2005: Projected.*

Minnesota Ethanol Production and Consumption



LEGISLATIVE SUMMARY
OF THE
MINNESOTA ETHANOL PROGRAM

Minnesota passed legislation in ***1980*** offering a 4 cent per gallon pump tax credit for 10 percent ethanol/gasoline blends. The credit was available to marketers responsible for paying the gasoline tax to the state.

By ***1986,*** 40 percent of the state's gasoline was blended with 10 percent ethanol, but little ethanol was produced in Minnesota. Legislation reduced the pump tax credit to 2 cents and initiated a 20 cent per gallon cash incentive payment for ethanol produced in the state.

In ***1987***, legislation provided $100,000 annually to conduct an ethanol promotion program in the Minnesota Department of Agriculture. The Minnesota Ethanol Commission was established to promote the production and use of ethanol in Minnesota. Activities included: 1) production of educational documents and events; 2) troubleshooting consumer and industry concerns about ethanol fuels; 3) helping develop farmer-owned ethanol production facilities; and 4) providing information to policymakers, the public and the media.

In ***1989,*** the mandatory pump labeling requirement for ethanol blends was discontinued in favor of voluntary labeling that was more consistent with other gasoline components.

In ***1992,*** a minimum 2.7 percent oxygen content requirement for gasoline was made effective year-round in the Twin Cities in '95 and then statewide in 1997. A federal program previously required 2.7 percent oxygen in the Twin Cities during the winter months.

In ***1993,*** funding was provided for $500,000 loans to assist ethanol plant developers.

In ***1994*** 1) a phase out of the pump tax credit was made to coincide with phasing in the statewide oxygen requirement; 2) a stock loan program would participate with banks loaning money to qualified farmers who wished to buy stock in ethanol plants.

In ***1995***, a statutory goal to develop 220 million gallons of Minnesota ethanol production was established.

In ***1998***, the production goal was increased to 240 million gallons of ethanol, and approval for the 15th ethanol plant was authorized.

In ***2000,*** the content of non-ethanol oxygenates such as MTBE in gasoline was restricted to 1/3 percent.

In ***2003***, 14 plants remain with a total annual production capacity of over 360 million gallons. Current state statute requires that the payments be reduced from 20 cents to 19 cents per gallon effective July 1, 2004. Of the $70 million allotted for 2002-03 biennial ethanol producer payments, $20 million was un-allotted by the governor. Three separate bills considered during the 2003 session include reducing the ethanol producer payment from 20 cents per gallon to 15, 13 and 10 cents per gallon respectively. The outcome of the session was not known at the time this summary was written.

ECONOMIC IMPACT OF THE ETHANOL INDUSTRY IN MINNESOTA

This economic impact analysis was conducted with the IMPLAN program (an input-output economic modeling system) to examine the ethanol industry in Minnesota. It estimates the ethanol industry's total economic contribution, or "multiplier effect", to the state economy, especially the ***output*** and ***employment*** impacts.

The economic impacts are measured to include the direct, indirect, and induced impacts. Direct impact represents the effect of the ethanol industry's production output. Indirect impact represents the effect on all other economic sectors due to purchases by the ethanol industry to generate the afore-mentioned output. Induced impact represents the effect on all economic sectors due to the expenditures of new income generated by the direct and indirect impacts. Total impact is the sum of direct, indirect and induced impacts.

IMPACT ANALYSIS

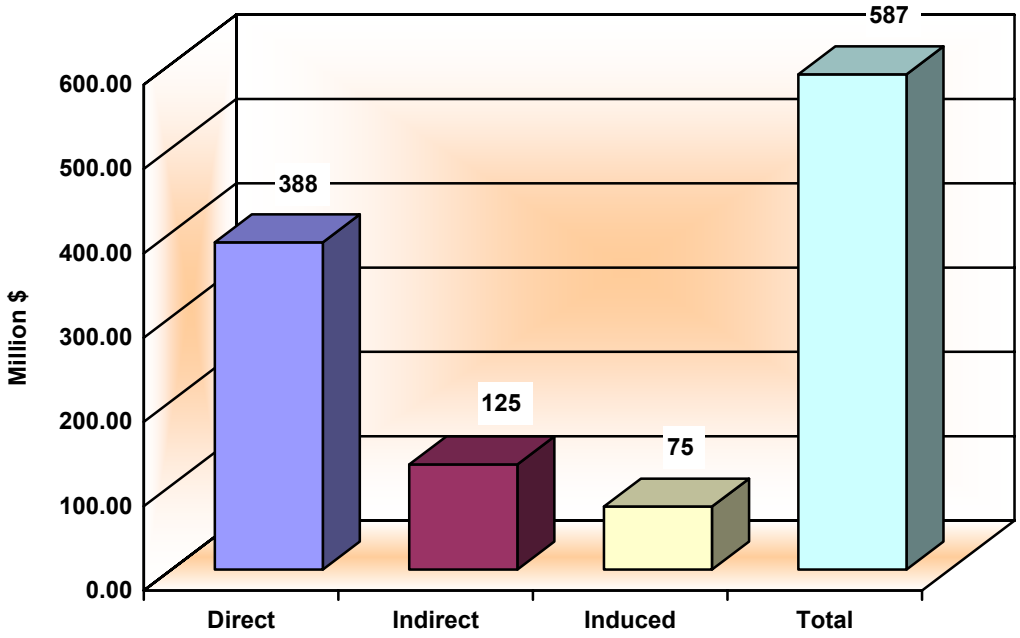
	Impact
Ethanol production	300 million gallons
Corn use	120 million bushels
Ethanol sales	$308 million
Corn feed sales (DDG & gluten feed/meal)	$80 million
Ethanol industry's total value of output	$388 million
Ethanol producer payment	$34 million

Total Economic Impacts

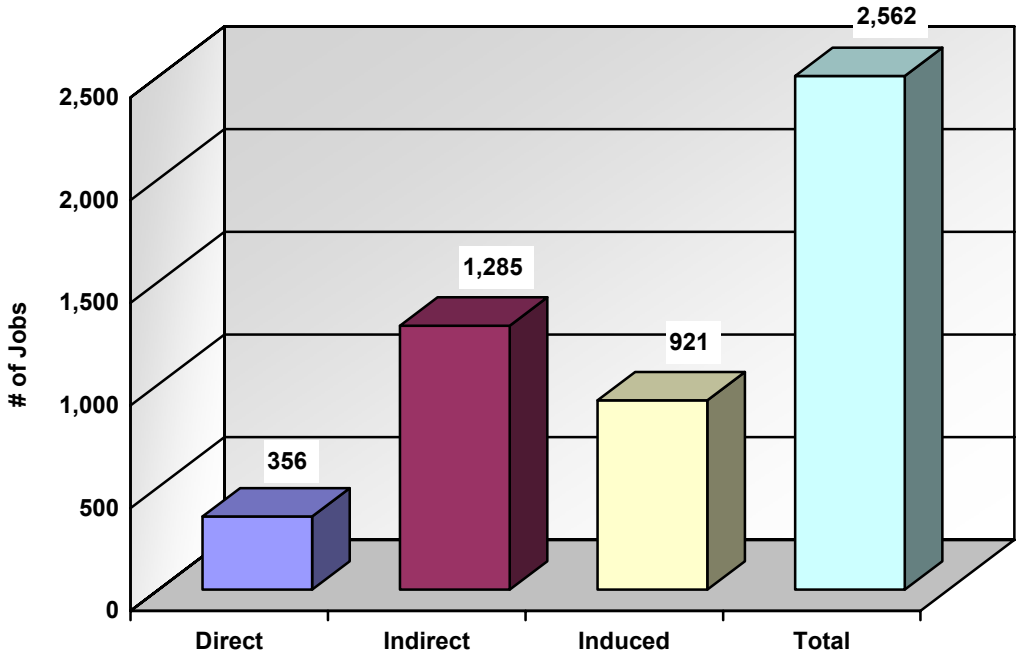
("Multiplier impact" in all economic sectors)

Total economic impact	
- Output impact	$587 million
- Employment impact	2,562 jobs

Minnesota Ethanol Industry Output Impact
Direct, indirect, induced, and total impacts



Minnesota Ethanol Industry Employment Impact
Direct, indirect, induced, and total impacts



IMPACT ANALYSIS *(continued)*

Economic Impact by Sector

OUTPUT IMPACT BY SECTOR

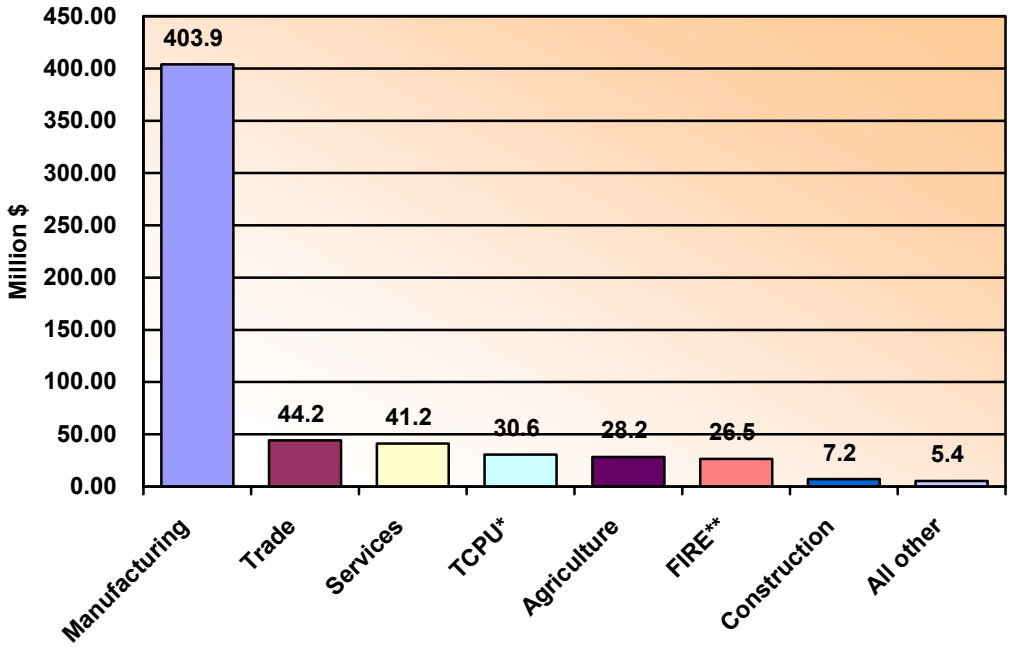
Sector	Impacts
1. Manufacturing	$404 million
2. Wholesale & retail trade	$44 million
3. Service	$41 million
4. Transportation, communication, and and public utilities	$31 million
5. Agriculture	$28 million
6. Finance, insurance, and real estate	$27 million
7. Construction	$7 million
8. All other	$5 million
Total	**$587 million**

EMPLOYMENT IMPACT BY SECTOR

Sector	Impacts
1. Service	674 jobs
2. Wholesale & retail trade	550 jobs
3. Agriculture	484 jobs
4. Manufacturing	419 jobs
5. Transportation, communication, and public utilities	163 jobs
6. Finance, insurance, and real estate	136 jobs
7. Construction	94 jobs
8. All other	42 jobs
Total	**2,562 jobs**

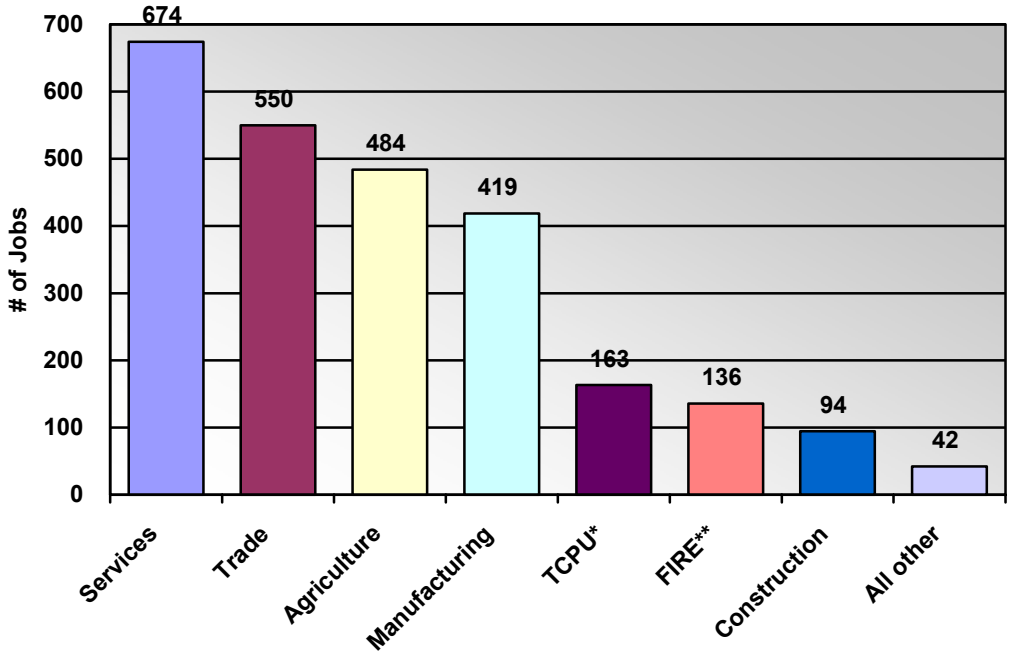
Minnesota Ethanol Industry Output Impact by Sector

Total output impact: $587 million



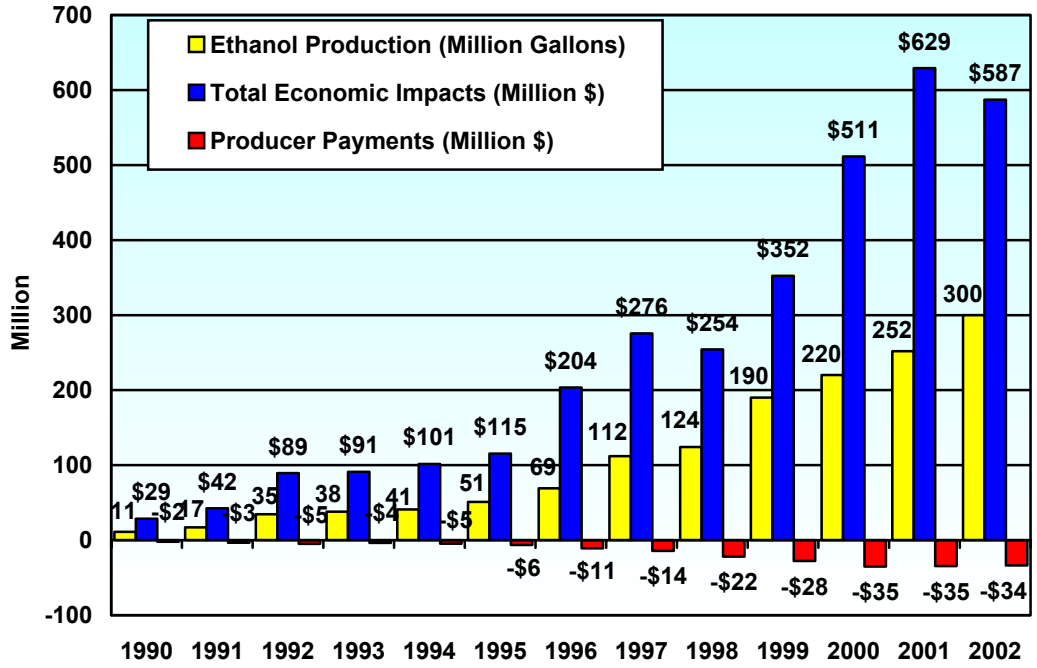
Minnesota Ethanol Industry Employment Impact by Sector

Total employment impact: 2,562 jobs

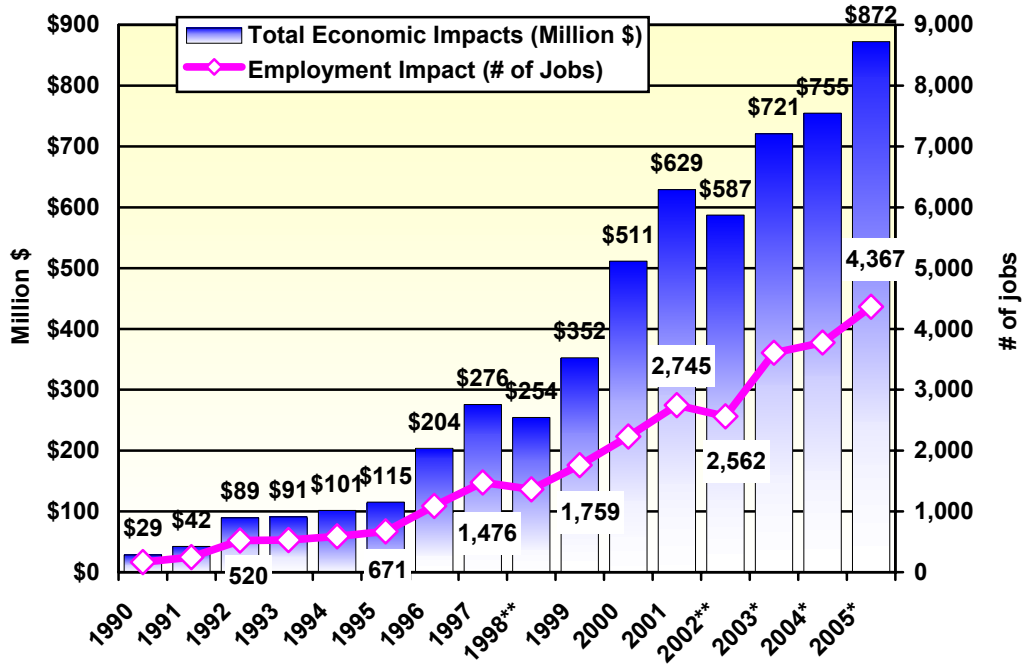


**TCPU: Transportation, communication, and public utilities.*
***FIRE: Finance, insurance, and real estate.*

Minnesota Ethanol:
Production, Producer Payments, and Economic Impacts
(Fiscal Year: July 1-June 30)



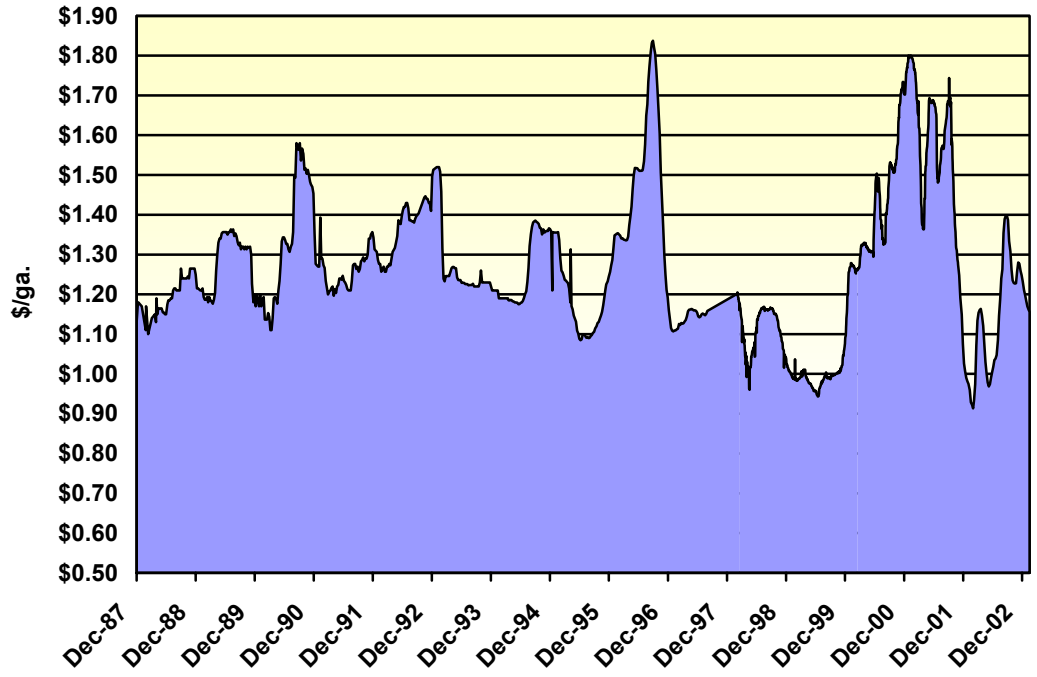
Minnesota Ethanol:
Total Economic Impact & Employment Impact



**2003-2005: Projected.*
***In 1998 and 2002, ethanol prices declined.*

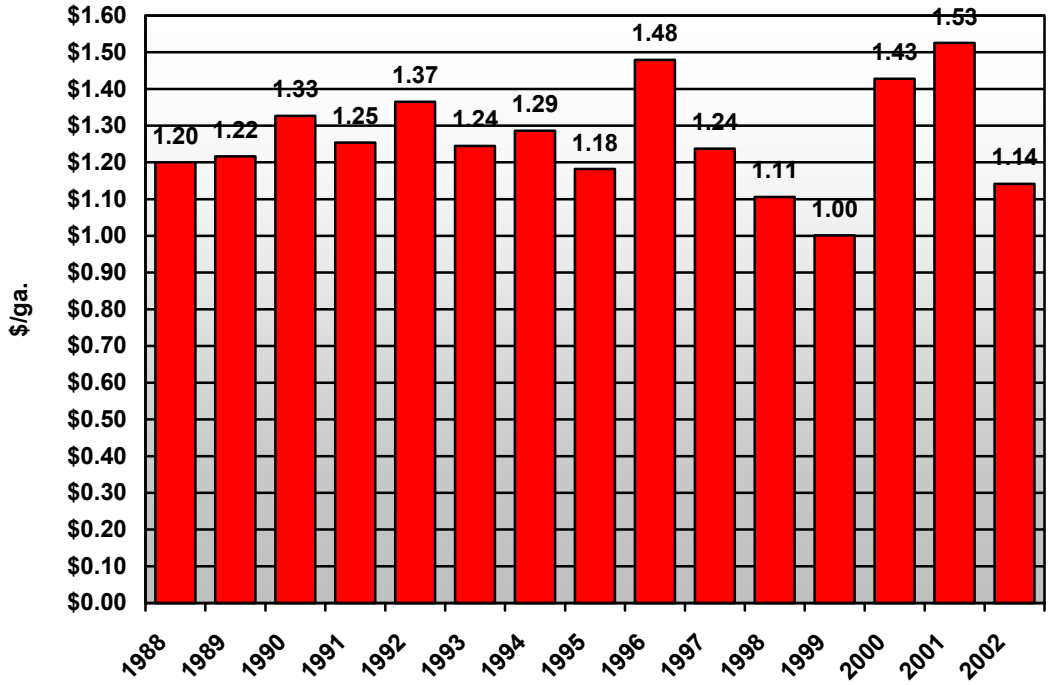
Minnesota Fuel Ethanol Price* Trend

Mpls/St. Paul: 1987-2002 Average = $1.27



Minnesota Ethanol Prices*, Annual Average

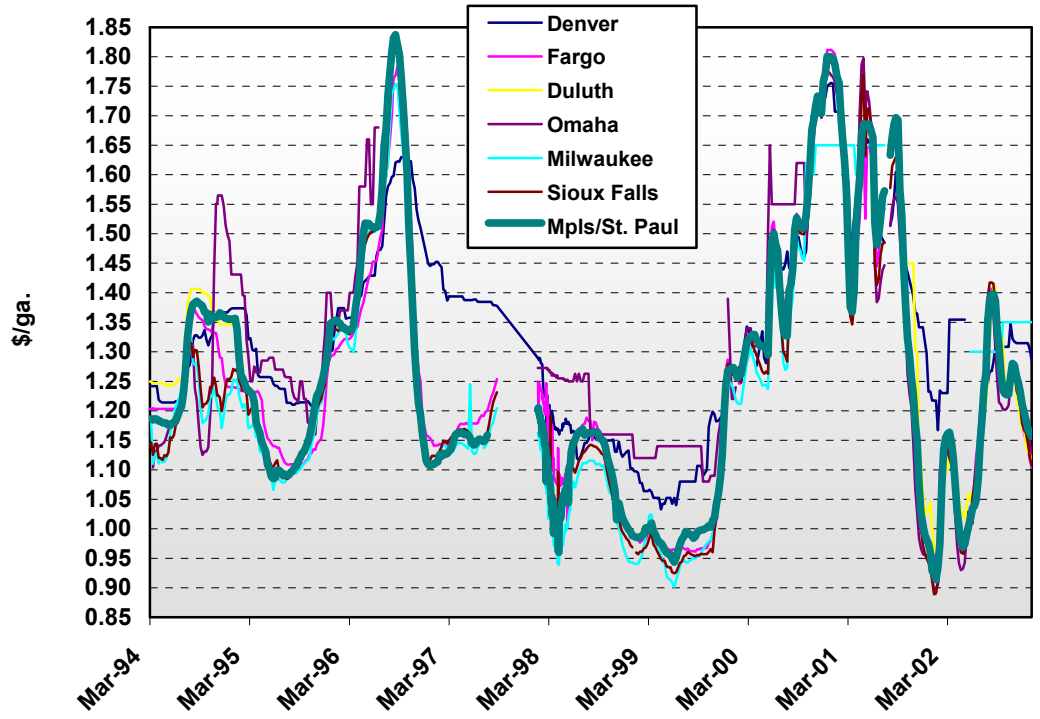
Mpls/St. Paul



**Rack prices: Wholesale bulk prices at the terminal.*
Source: Axxis Petroleum.

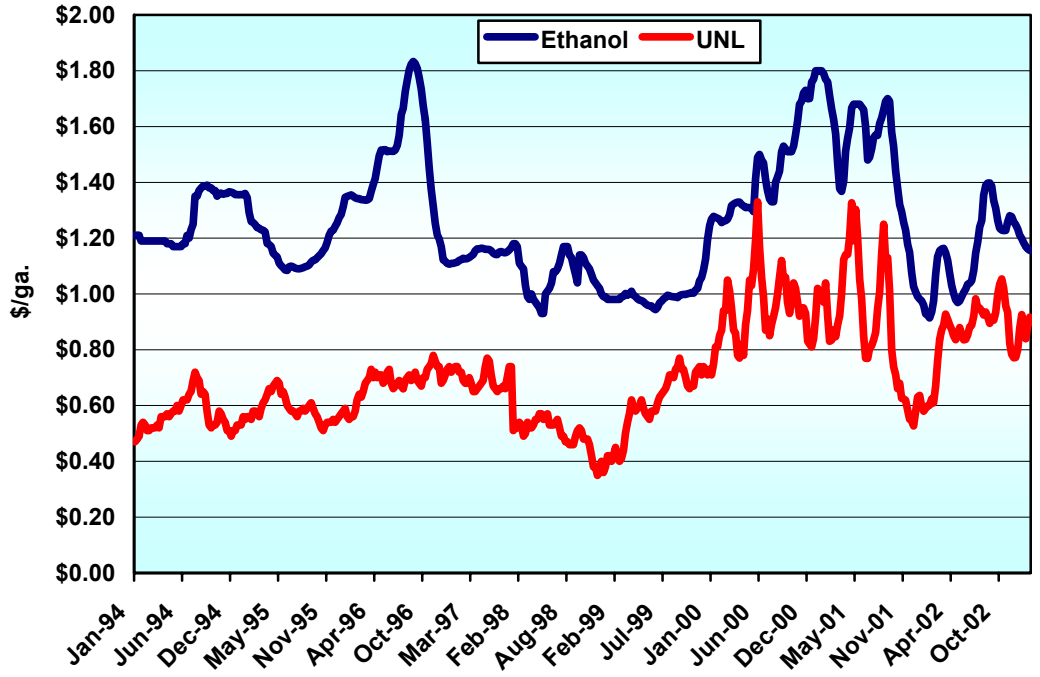
Ethanol Prices* in Selected Cities

Weekly Prices



Minnesota Ethanol* & Gasoline Prices

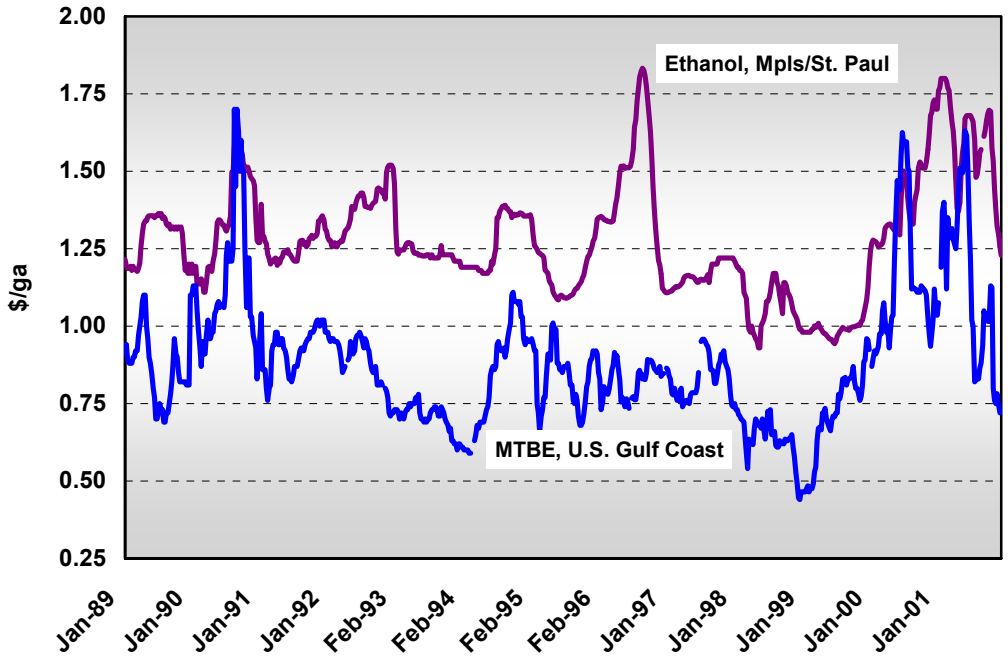
Mpls/St. Paul Weekly Prices



**Rack prices: Wholesale bulk prices at the terminal.*
Source: Axxis Petroleum.

Ethanol* and MTBE Prices

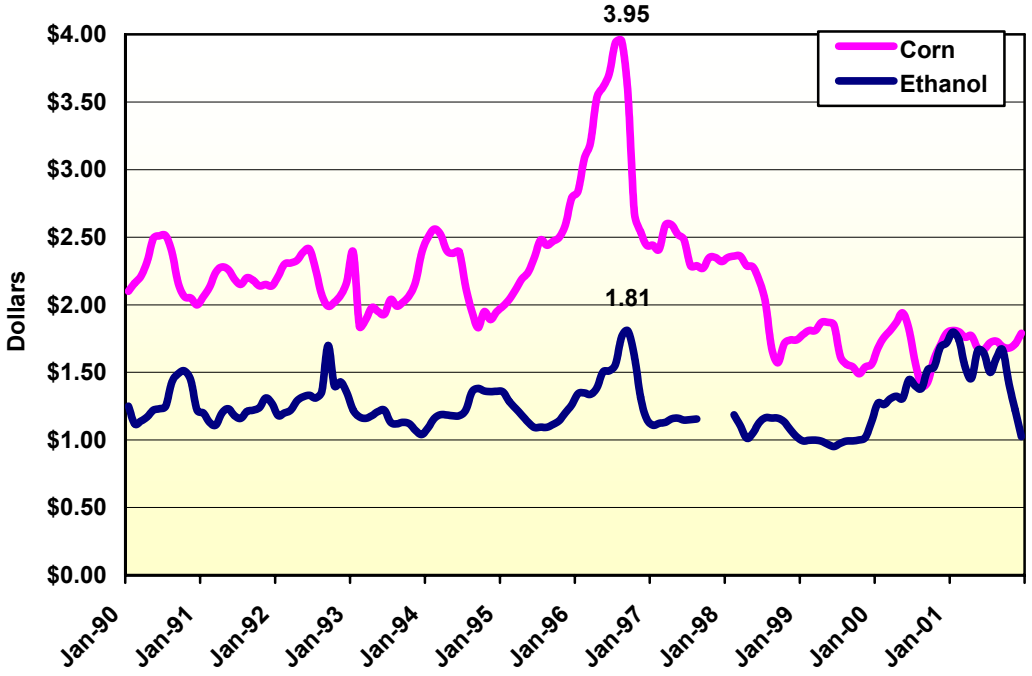
1989-2001



MTBE: Methyl Tertiary Butyl Ether – a petroleum oxygenate for gasoline.

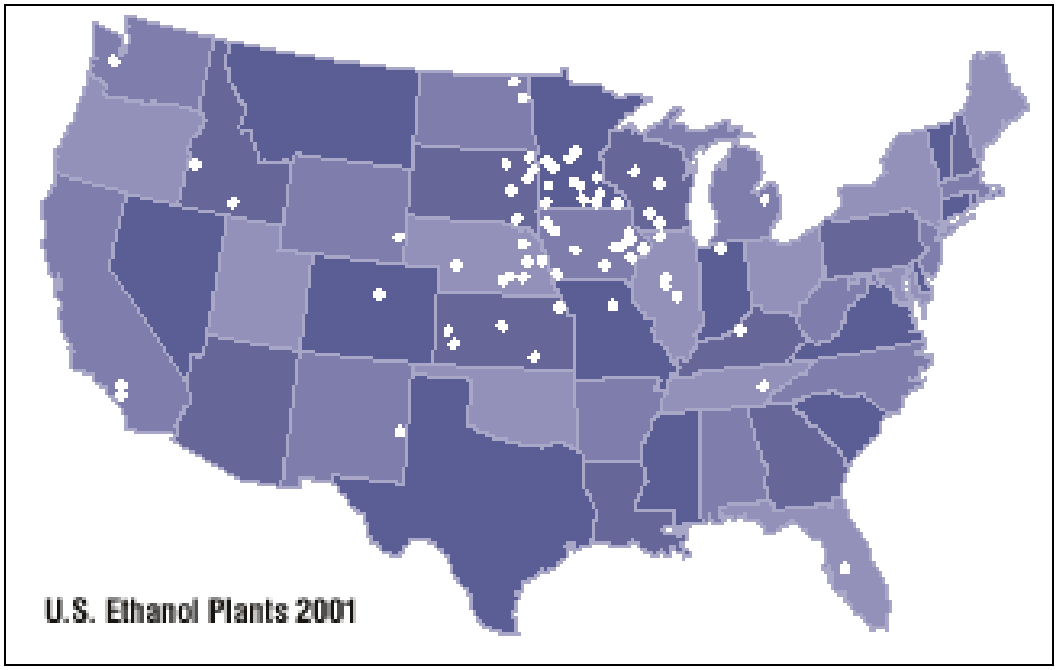
Minnesota Corn & Ethanol* Prices

Monthly Prices



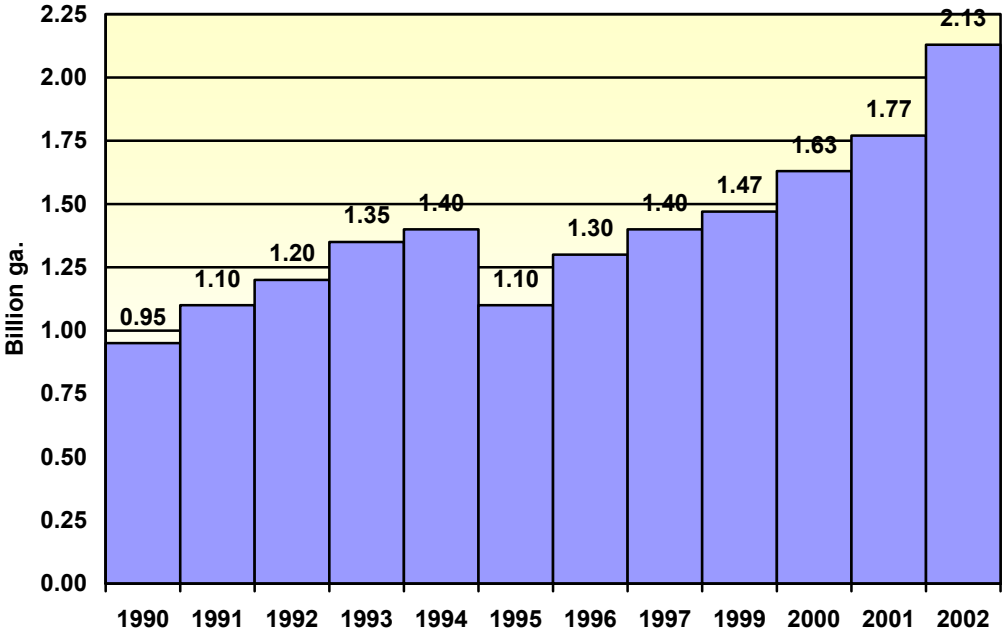
**Rack prices: Wholesale bulk prices at the terminal.*
Source: Minnesota Agricultural Statistics, Axxis Petroleum, and Oxy Fuels.

U.S. Ethanol Plants (2001)

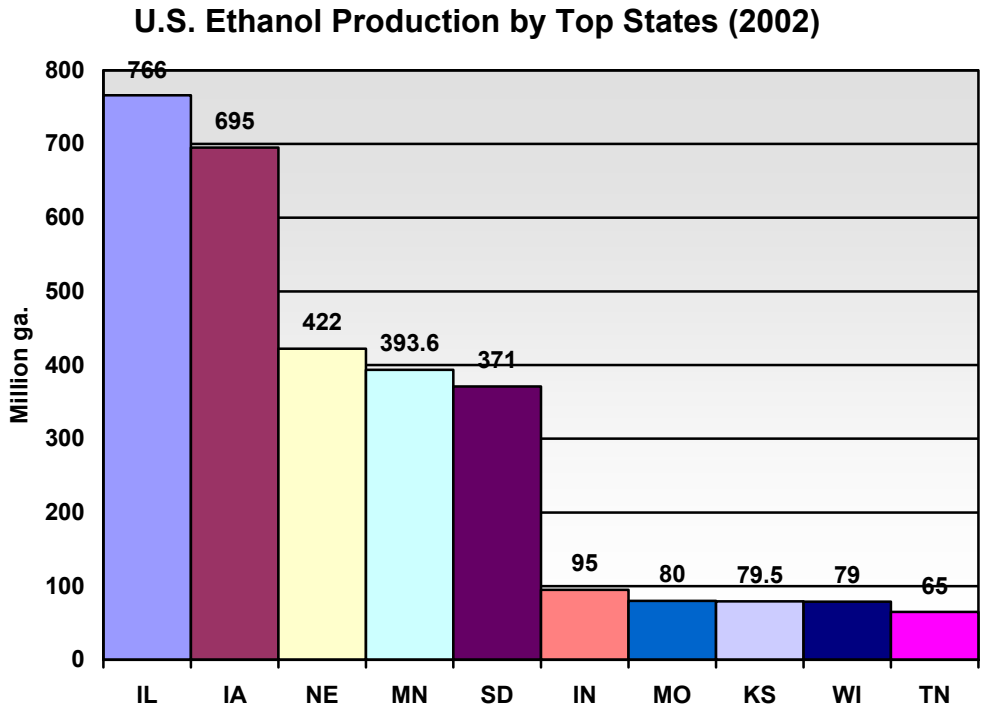


Source: National Corn Growers Association.

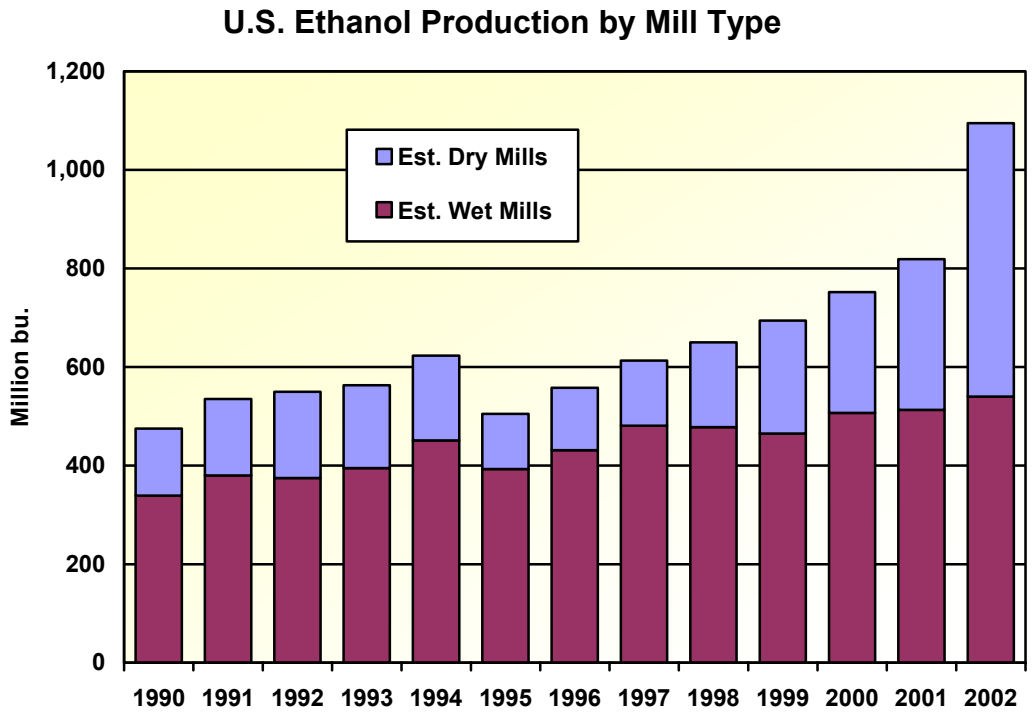
U.S. Ethanol Production



Source: Renewable Fuels Association.

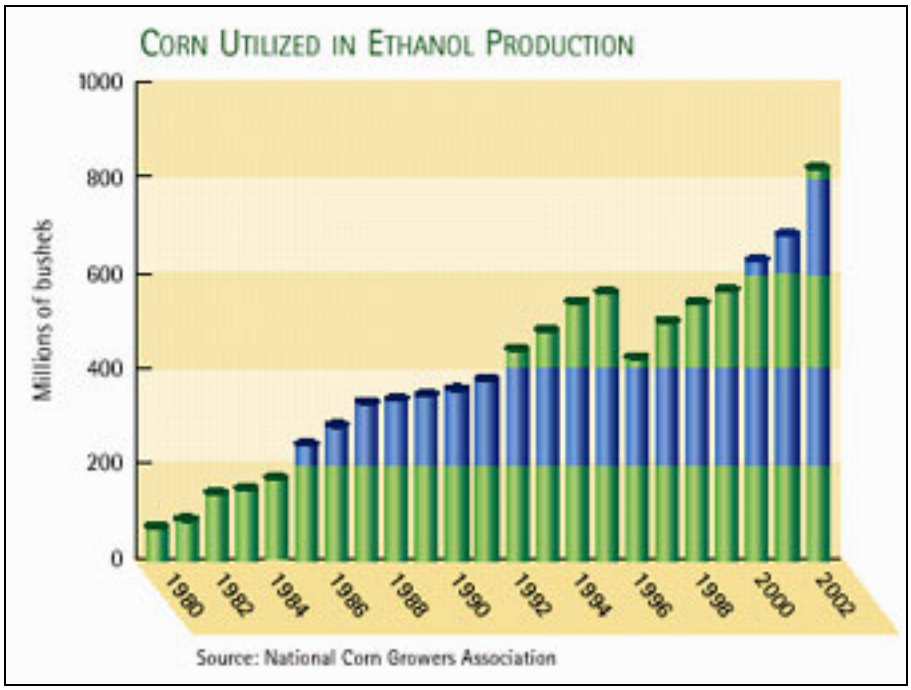


Source: Renewable Fuels Association.

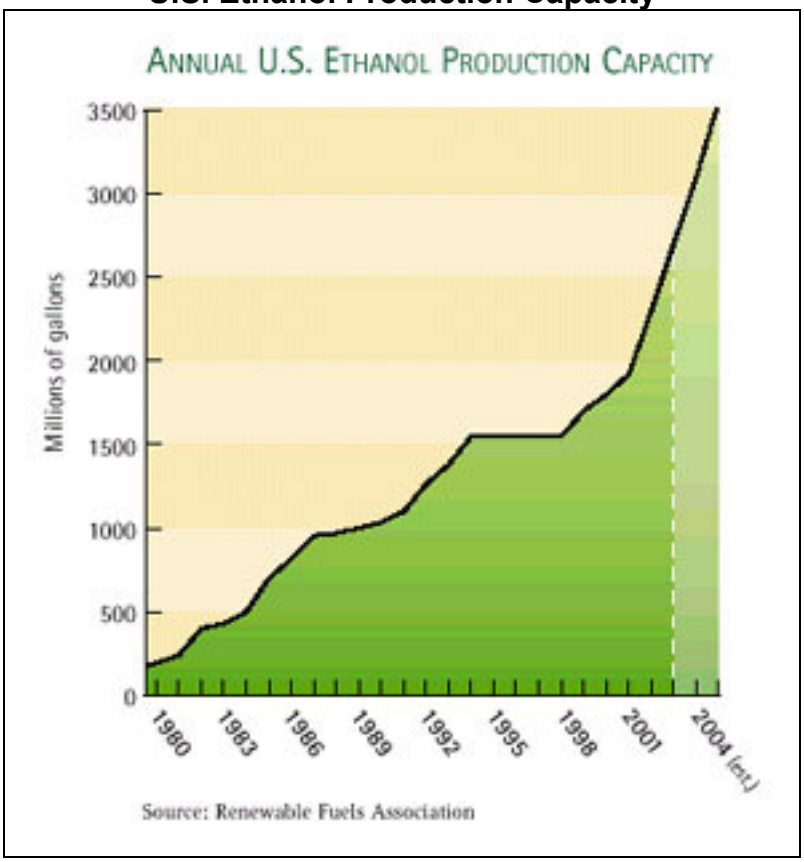


Source: ProExporter Network (PRX).

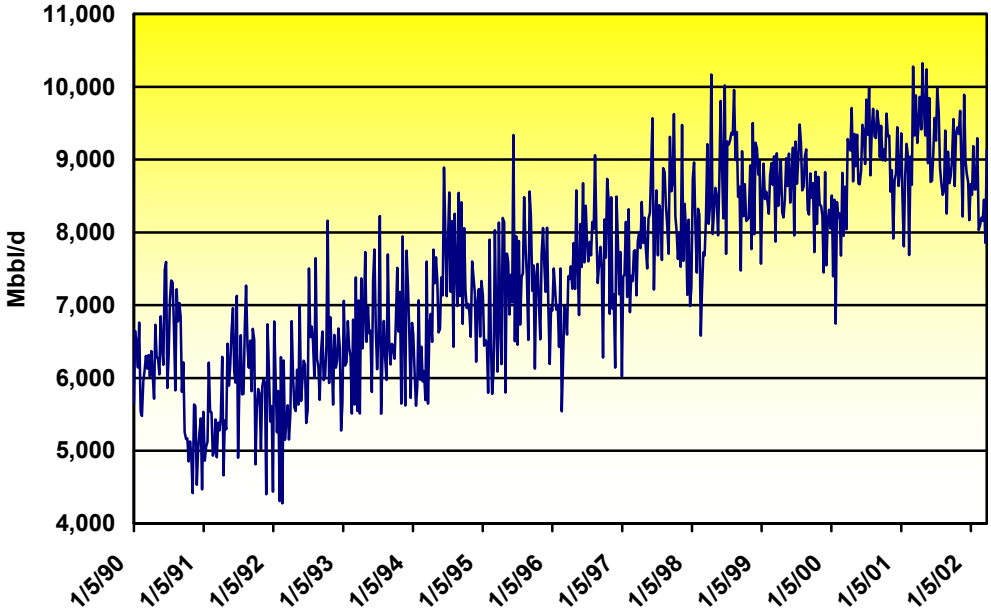
U.S. Corn Utilized for Ethanol Production



U.S. Ethanol Production Capacity

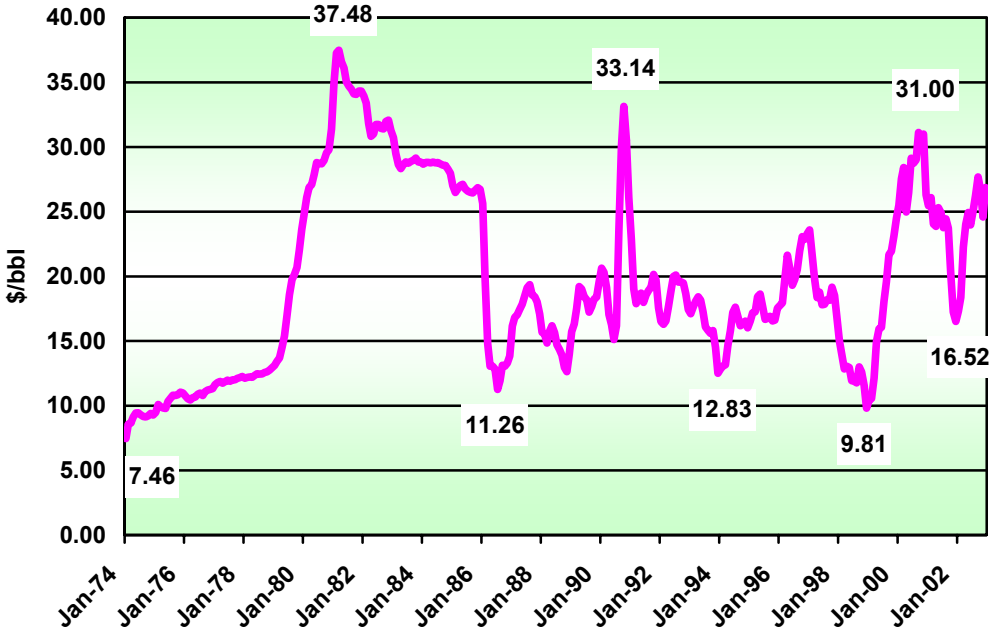


U.S. Crude Oil Imports (1990-2002)
Weekly Imports



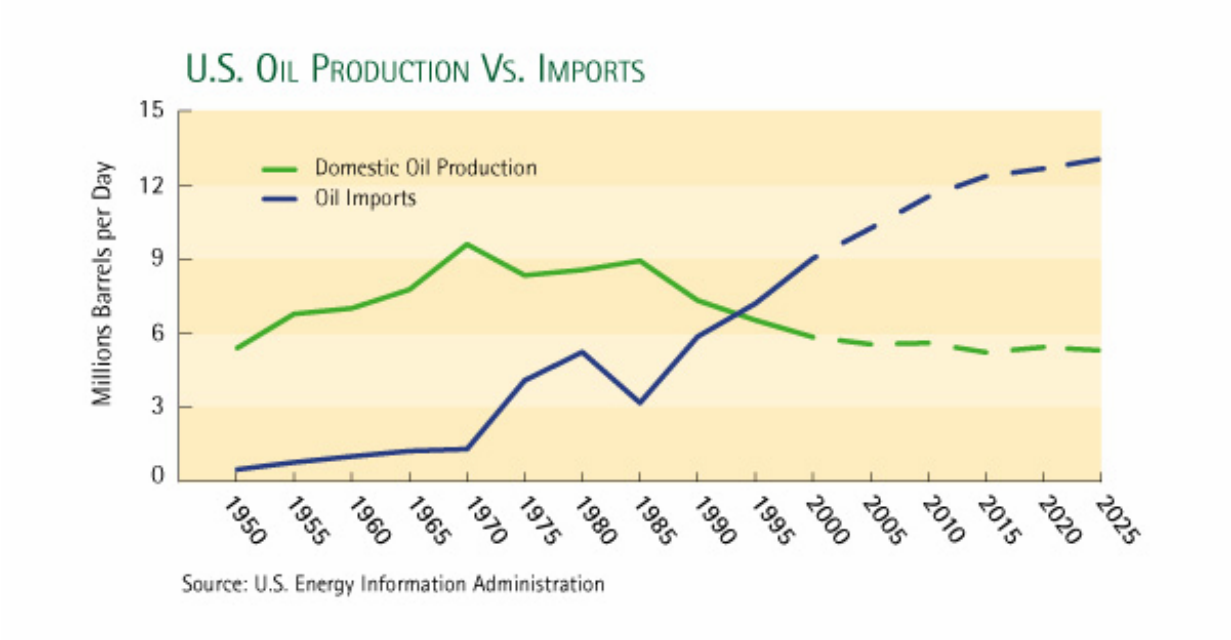
Source: U.S. Department of Energy.

U.S. Crude Oil Prices (1974-2002)

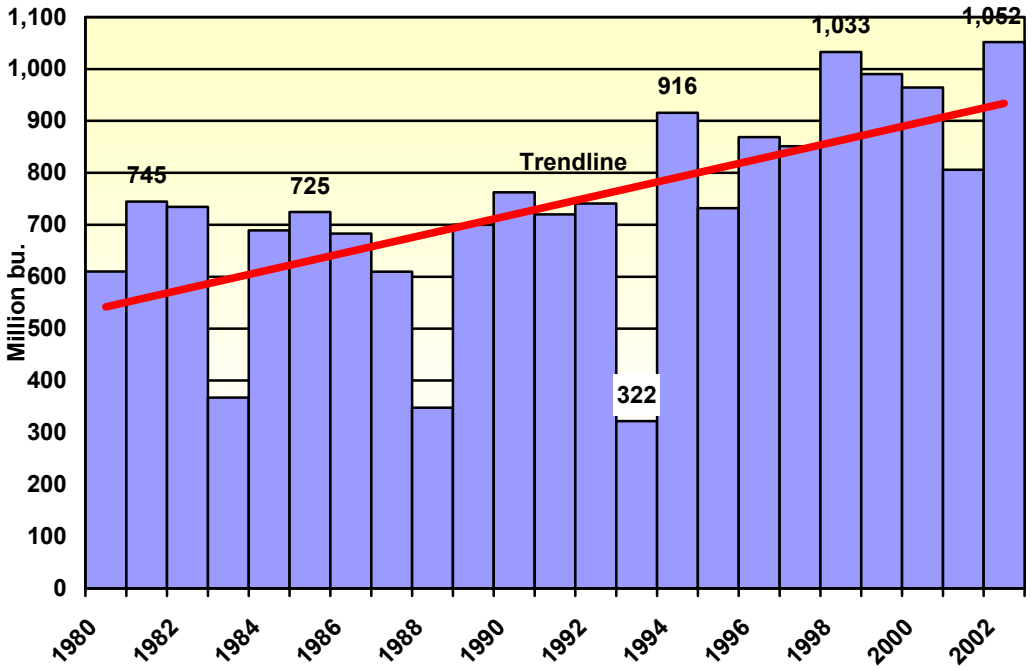


Source: U.S. Department of Energy.

U.S. Oil Production vs. Imports

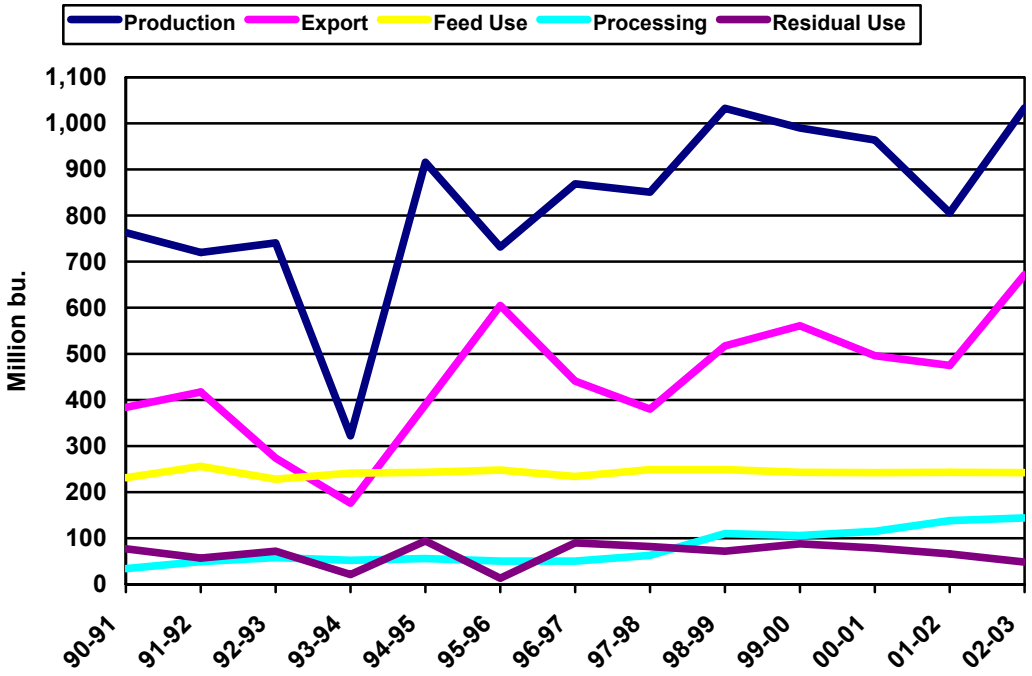


Minnesota Corn Production

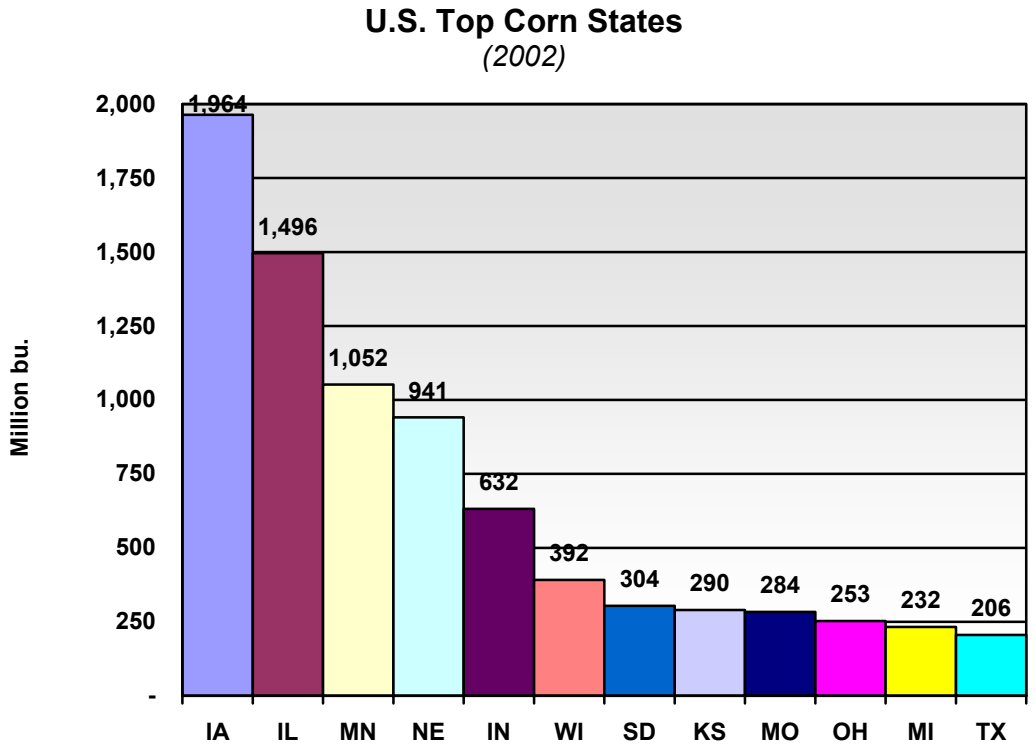


Source: USDA.

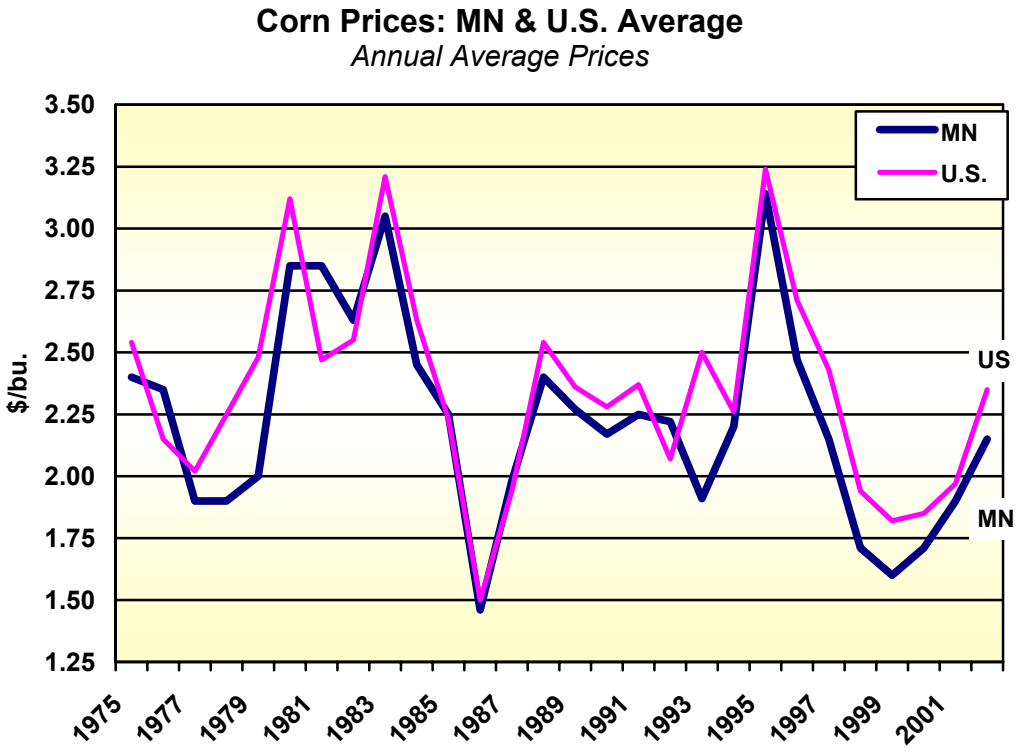
Minnesota Corn Utilization



Source: PRX.



Source: USDA.



Source: USDA.

U.S. Top Corn States:
Comparing Corn Production, Processing, and Prices

Production *(Million Bushels)*

Crop Year	Rank (2002-2003 Crop Year)					U.S. Total
	1	2	3	4	5	
	IA	IL	MN	NE	IN	
90-91	1,562	1,321	**763**	934	703	7,934
91-92	1,427	1,177	**720**	991	511	7,475
92-93	1,904	1,646	**741**	1,067	878	9,477
93-94	880	1,300	**322**	785	713	6,338
94-95	1,915	1,786	**916**	1,147	858	10,051
95-96	1,427	1,130	**732**	855	599	7,400
96-97	1,711	1,469	**869**	1,180	670	9,233
97-98	1,642	1,425	**851**	1,135	702	9,207
98-99	1,769	1,473	**1,033**	1,240	760	9,759
99-00	1,758	1,491	**990**	1,154	748	9,431
00-01	1,728	1,669	**964**	1,014	810	9,915
01-02	1,664	1,649	**806**	1,139	885	9,507
02-03	1,964	1,496	**1,052**	941	632	9,008

Processing *(Million Bushels)*

Crop Year	Rank (2002-2003 Crop Year)					U.S. Total
	1	2	3	4	5	
	IA	IL	NE	IN	MN	
90-91	416	380	54	145	**34**	1,405
91-92	457	407	63	152	**49**	1,514
92-93	461	429	71	147	**58**	1,542
93-94	490	441	70	152	**52**	1,592
94-95	515	468	121	159	**56**	1,694
95-96	479	429	126	153	**50**	1,607
96-97	500	463	136	163	**50**	1,693
97-98	558	504	143	169	**63**	1,781
98-99	587	485	154	155	**110**	1,826
99-00	572	519	179	173	**106**	1,910
00-01	588	536	190	177	**115**	1,968
01-02	593	536	205	182	**138**	2,038
02-03	642	557	214	183	**144**	2,175

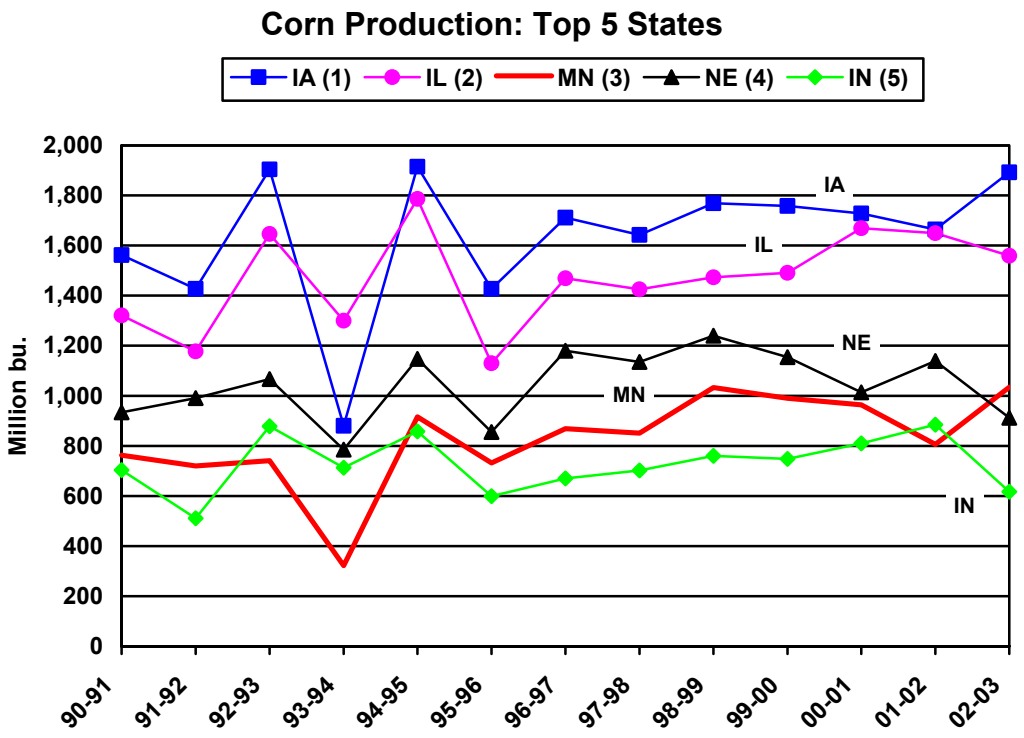
Source: PRX.

U.S. Top Corn States:
Comparing Corn Production, Processing, and Prices (continued)

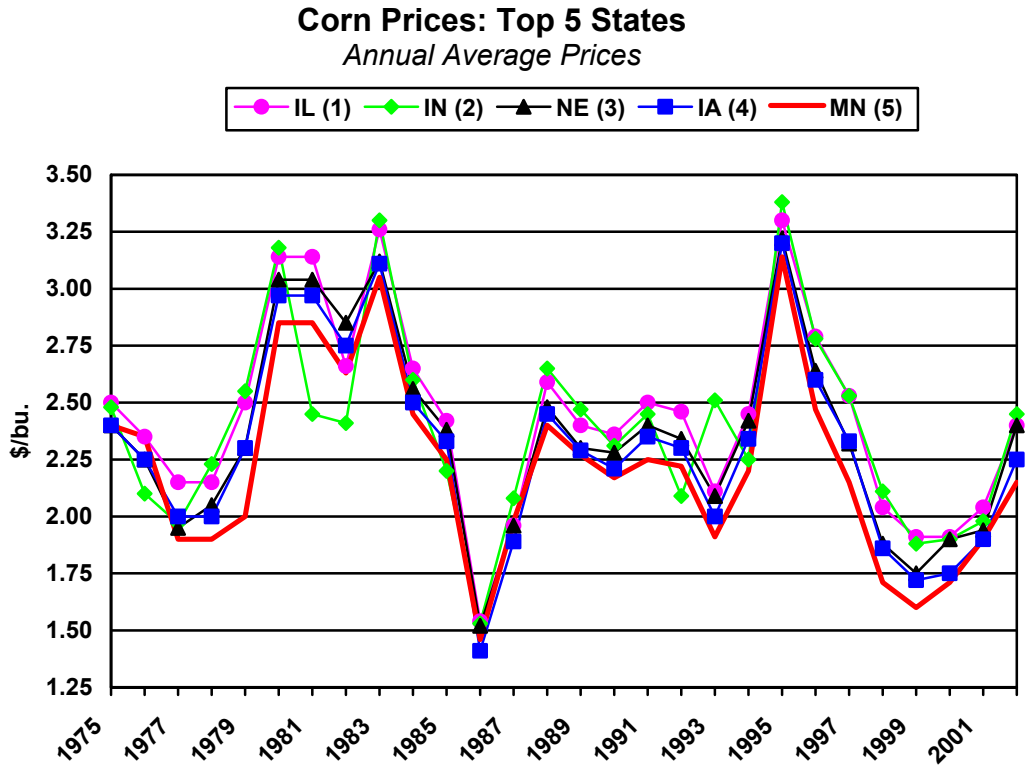
Prices *(Dollar per Bushel)*

Year	Rank (2002)					U.S. Average	U.S. High	U.S. Low
	1	2	3	4	5			
	IL	IN	NE	IA	MN			
1980	3.15	3.18	3.08	3.00	**2.91**	3.12	3.18	2.91
1981	2.52	2.45	2.47	2.34	**2.24**	2.47	2.52	2.24
1982	2.61	2.41	2.82	2.69	**2.57**	2.55	2.82	2.41
1983	3.26	3.30	3.13	3.12	**3.06**	3.21	3.30	3.06
1984	2.66	2.60	2.58	2.51	**2.47**	2.63	2.66	2.47
1985	2.27	2.20	2.22	2.02	**2.05**	2.23	2.27	2.02
1986	1.54	1.53	1.52	1.41	**1.46**	1.50	1.54	1.41
1987	1.96	2.08	1.96	1.89	**1.98**	1.94	2.08	1.89
1988	2.59	2.65	2.48	2.45	**2.40**	2.54	2.65	2.40
1989	2.40	2.47	2.30	2.29	**2.27**	2.36	2.47	2.27
1990	2.36	2.31	2.28	2.21	**2.17**	2.28	2.36	2.17
1991	2.46	2.45	2.34	2.30	**2.22**	2.37	2.46	2.22
1992	2.11	2.09	2.09	2.00	**1.91**	2.07	2.11	1.91
1993	2.57	2.51	2.52	2.44	**2.26**	2.50	2.57	2.26
1994	2.27	2.25	2.33	2.22	**2.23**	2.26	2.33	2.22
1995	3.30	3.38	3.22	3.20	**3.14**	3.24	3.38	3.14
1996	2.79	2.78	2.64	2.60	**2.47**	2.71	2.79	2.47
1997	2.53	2.53	2.32	2.33	**2.15**	2.43	2.53	2.15
1998	2.04	2.11	1.88	1.86	**1.71**	1.94	2.11	1.71
1999	1.91	1.88	1.75	1.72	**1.60**	1.82	1.91	1.60
2000	1.91	1.90	1.90	1.75	**1.71**	1.85	1.91	1.71
2001	2.04	1.98	1.94	1.90	**1.90**	1.97	2.04	1.90
2002	2.40	2.45	2.40	2.25	**2.15**	2.35	2.45	2.15
Average	2.42	2.41	2.36	2.28	**2.22**	2.36	2.42	2.22
Price difference between IL & MN					**0.20**			
Price difference between US & MN					**0.14**			

Source: USDA, NASS.



Source: USDA.



Source: USDA.

Value of Corn
Raw Commodity vs. Value-Added
(per bushel of corn)

1. July 2002 Prices

Products	Corn	Value-Added				
		Wet-Milling				Dry-Milling
	Raw	Starch &	Ethanol &	Sweeteners & Products		Ethanol &
	Commodity	Products	Products	Corn Syrup	HFCS	DDG
Corn	$2.17					
Corn Oil		$0.29	$0.29	$0.29	$0.29	
Gluten Feed		$0.28	$0.28	$0.28	$0.28	
Gluten Meal		$0.41	$0.41	$0.41	$0.41	
Starch		$4.03				
Ethanol			$2.76			$2.91
Corn Syrup				$4.70		
HFCS					$3.60	
DDG						$0.65
Total Value	**$2.17**	**$5.02**	**$3.76**	**$5.69**	**$4.59**	**$3.56**

2. December 2002 Prices

Products	Corn	Value-Added				
		Wet-Milling				Dry-Milling
	Raw	Starch &	Ethanol &	Sweeteners & Products		Ethanol &
	Commodity	Products	Products	Corn Syrup	HFCS	DDG
Corn	$2.11					
Corn Oil		$0.44	$0.44	$0.44	$0.44	
Gluten Feed		$0.35	$0.35	$0.35	$0.35	
Gluten Meal		$0.30	$0.30	$0.30	$0.30	
Starch		$4.15				
Ethanol			$3.00			$3.16
Corn Syrup				$5.10		
HFCS					$3.83	
DDG						$0.67
Total Value	**$2.11**	**$5.24**	**$4.09**	**$6.19**	**$4.92**	**$3.83**

Computation based on the following:

Corn prices (Minneapolis Grain Exchange)
Corn oil prices (Wall Street Journal)
Gluten feed prices (USDA, Grain & Feed Market News)
Gluten meal prices (USDA, Grain & Feed Market News)
Starch prices (USDA, ERS)
Ethanol prices (Mpls/St. Paul market, Axxis Petroleum)
Corn syrup prices (Milling & Baking News)
HFCS prices (Milling & Baking News)
DDG prices (USDA, Grain & Feed Market News)

Value of Corn
Raw Commodity vs. Value-Added
(per bushel of corn)

1. July 2000 Prices

Products	Corn	Value-Added				
		Wet-Milling				Dry-Milling
	Raw	Starch &	Ethanol &	Sweeteners & Products		Ethanol &
	Commodity	Products	Products	Corn Syrup	HFCS	DDG
Corn	$1.48					
Corn Oil		$0.21	$0.21	$0.21	$0.21	
Gluten Feed		$0.22	$0.22	$0.22	$0.22	
Gluten Meal		$0.26	$0.26	$0.26	$0.26	
Starch		$4.02				
Ethanol			$3.43			$3.61
Corn Syrup				$4.10		
HFCS					$4.91	
DDG						$0.59
Total Value	**$1.48**	**$4.71**	**$4.12**	**$4.79**	**$5.60**	**$4.20**

2. December 2000 Prices

Products	Corn	Value-Added				
		Wet-Milling				Dry-Milling
	Raw	Starch &	Ethanol &	Sweeteners & Products		Ethanol &
	Commodity	Products	Products	Corn Syrup	HFCS	DDG
Corn	$1.85					
Corn Oil		$0.16	$0.16	$0.16	$0.16	
Gluten Feed		$0.33	$0.33	$0.33	$0.33	
Gluten Meal		$0.32	$0.32	$0.32	$0.32	
Starch		$4.06				
Ethanol			$4.25			$4.48
Corn Syrup				$4.26		
HFCS					$4.91	
DDG						$0.71
Total Value	**$1.85**	**$4.87**	**$5.06**	**$5.07**	**$5.72**	**$5.18**

Computation based on the following:

Corn prices (Minneapolis Grain Exchange)
Corn oil prices (Wall Street Journal)
Gluten feed prices (USDA, Grain & Feed Market News)
Gluten meal prices (USDA, Grain & Feed Market News)
Starch prices (USDA, ERS)
Ethanol prices (Mpls/St. Paul market, Axxis Petroleum)
Corn syrup prices (Milling & Baking News)
HFCS prices (Milling & Baking News)
DDG prices (USDA, Grain & Feed Market News)

Value of Corn *(continued)*
Raw Commodity vs. Value-Added
(per bushel of corn)

3. July 1998 Prices

Products	Corn	Value-Added				
		Wet-Milling				Dry-Milling
	Raw	Starch &	Ethanol &	Sweeteners & Products		Ethanol &
	Commodity	Products	Products	Corn Syrup	HFCS	DDG
Corn	$2.14					
Corn Oil		$0.50	$0.50	$0.50	$0.50	
Gluten Feed		$0.29	$0.29	$0.29	$0.29	
Gluten Meal		$0.30	$0.30	$0.30	$0.30	
Starch		$4.06				
Ethanol			$2.85			$3.00
Corn Syrup				$3.96		
HFCS					$3.54	
DDG						$0.66
Total Value	**$2.14**	**$5.14**	**$3.94**	**$5.05**	**$4.63**	**$3.67**

4. December 1998 Prices

Products	Corn	Value-Added				
		Wet-Milling				Dry-Milling
	Raw	Starch &	Ethanol &	Sweeteners & Products		Ethanol &
	Commodity	Products	Products	Corn Syrup	HFCS	DDG
Corn	$1.86					
Corn Oil		$0.47	$0.47	$0.47	$0.47	
Gluten Feed		$0.37	$0.37	$0.37	$0.37	
Gluten Meal		$0.34	$0.34	$0.34	$0.34	
Starch		$3.81				
Ethanol			$2.51			$2.64
Corn Syrup				$3.90		
HFCS					$3.45	
DDG						$0.69
Total Value	**$1.86**	**$4.99**	**$3.69**	**$5.08**	**$4.63**	**$3.33**

Computation based on the following:
Corn prices (Minneapolis Grain Exchange)
Corn oil prices (Wall Street Journal)
Gluten feed prices (USDA, Grain & Feed Market News)
Gluten meal prices (USDA, Grain & Feed Market News)
Starch prices (USDA, ERS)
Ethanol prices (Mpls/St. Paul market, Axxis Petroleum)
Corn syrup prices (Milling & Baking News)
HFCS prices (Milling & Baking News)
DDG prices (USDA, Grain & Feed Market News)

Value of Corn *(continued)*
Raw Commodity vs. Value-Added
(per bushel of corn)

5. July 1996 Prices

Products	Corn	Value-Added				
		Wet-Milling				Dry-Milling
	Raw	Starch &	Ethanol &	Sweeteners & Products		Ethanol &
	Commodity	Products	Products	Corn Syrup	HFCS	DDG
Corn	$4.68					
Corn Oil		$0.40	$0.40	$0.40	$0.40	
Gluten Feed		$0.54	$0.54	$0.54	$0.54	
Gluten Meal		$0.36	$0.36	$0.36	$0.36	
Starch		$5.87				
Ethanol			$3.85			$4.06
Corn Syrup				$5.26		
HFCS					$6.86	
DDG						$1.28
Total Value	**$4.68**	**$7.18**	**$5.16**	**$6.57**	**$8.17**	**$5.33**

6. December 1996 Prices

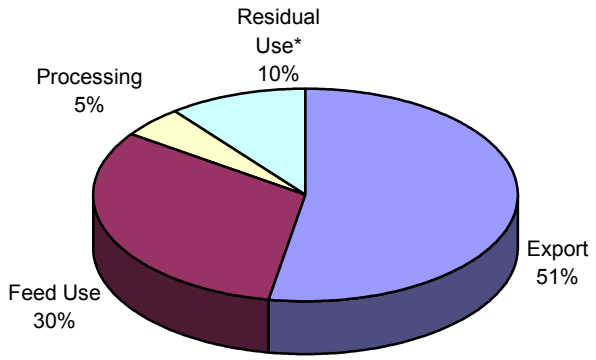
Products	Corn	Value-Added				
		Wet-Milling				Dry-Milling
	Raw	Starch &	Ethanol &	Sweeteners & Products		Ethanol &
	Commodity	Products	Products	Corn Syrup	HFCS	DDG
Corn	$2.46					
Corn Oil		$0.35	$0.35	$0.35	$0.35	
Gluten Feed		$0.49	$0.49	$0.49	$0.49	
Gluten Meal		$0.40	$0.40	$0.40	$0.40	
Starch		$4.08				
Ethanol			$2.84			$2.99
Corn Syrup				$5.26		
HFCS					$6.86	
DDG						$1.15
Total Value	**$2.46**	**$5.33**	**$4.08**	**$6.51**	**$8.11**	**$4.13**

Computation based on the following:

Corn prices (Minneapolis Grain Exchange)
Corn oil prices (Wall Street Journal)
Gluten feed prices (USDA, Grain & Feed Market News)
Gluten meal prices (USDA, Grain & Feed Market News)
Starch prices (USDA, ERS)
Ethanol prices (Mpls/St. Paul market, Axxis Petroleum)
Corn syrup prices (Milling & Baking News)
HFCS prices (Milling & Baking News)
DDG prices (USDA, Grain & Feed Market News)

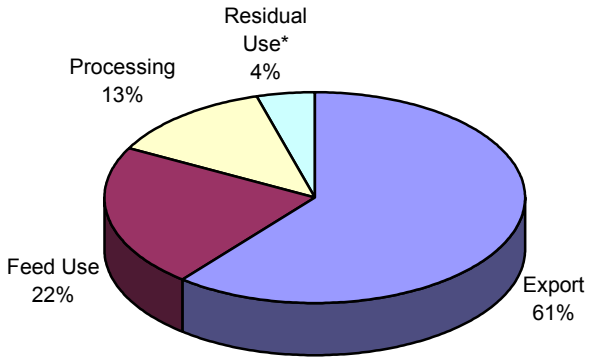
Minnesota Corn Utilization

1990-1991 Crop Year



Total Production: 763 million bu.

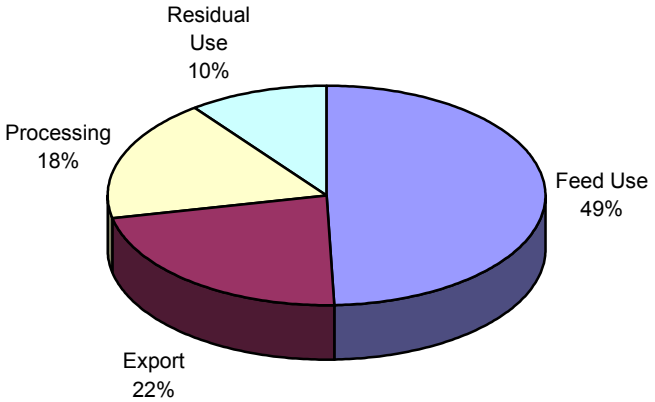
2002-2003 Crop Year



Total Production: 1,052 million bu.

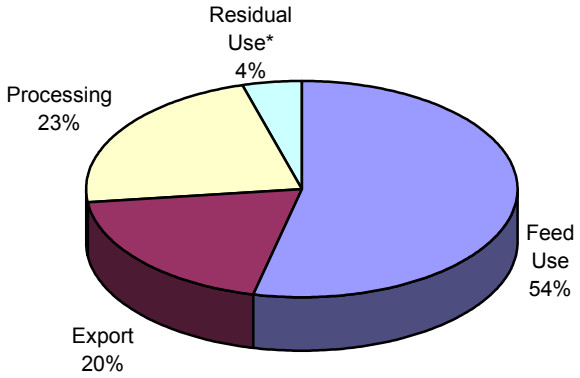
U.S. Corn Utilization

1990-1991 Crop Year



Total Production: 7,934 million bu.

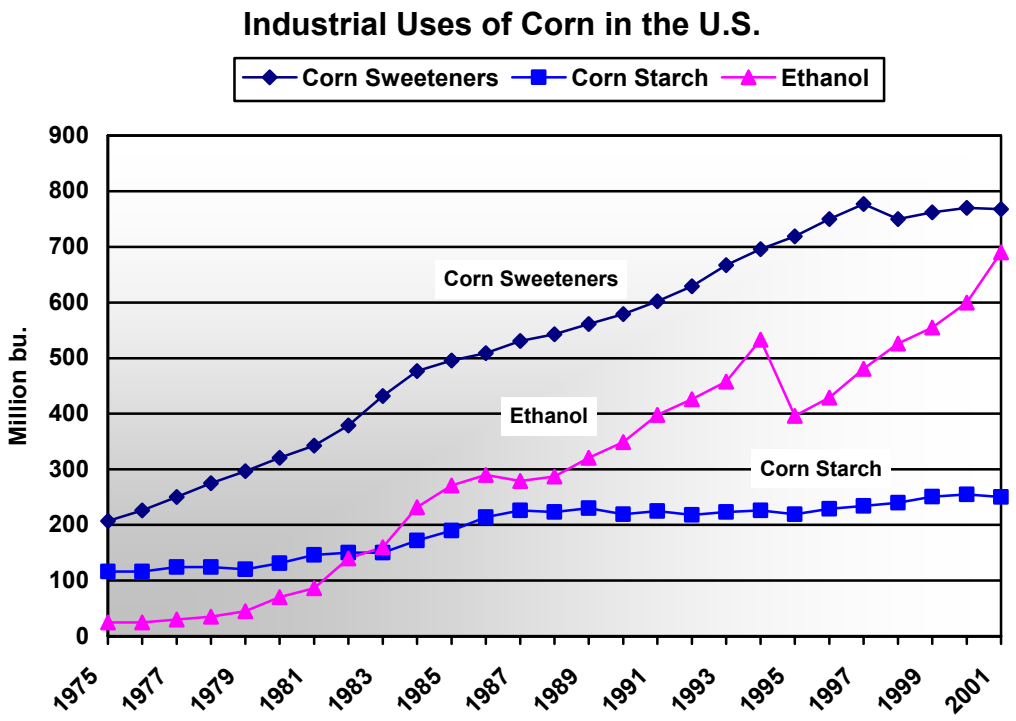
2002-2003 Crop Year

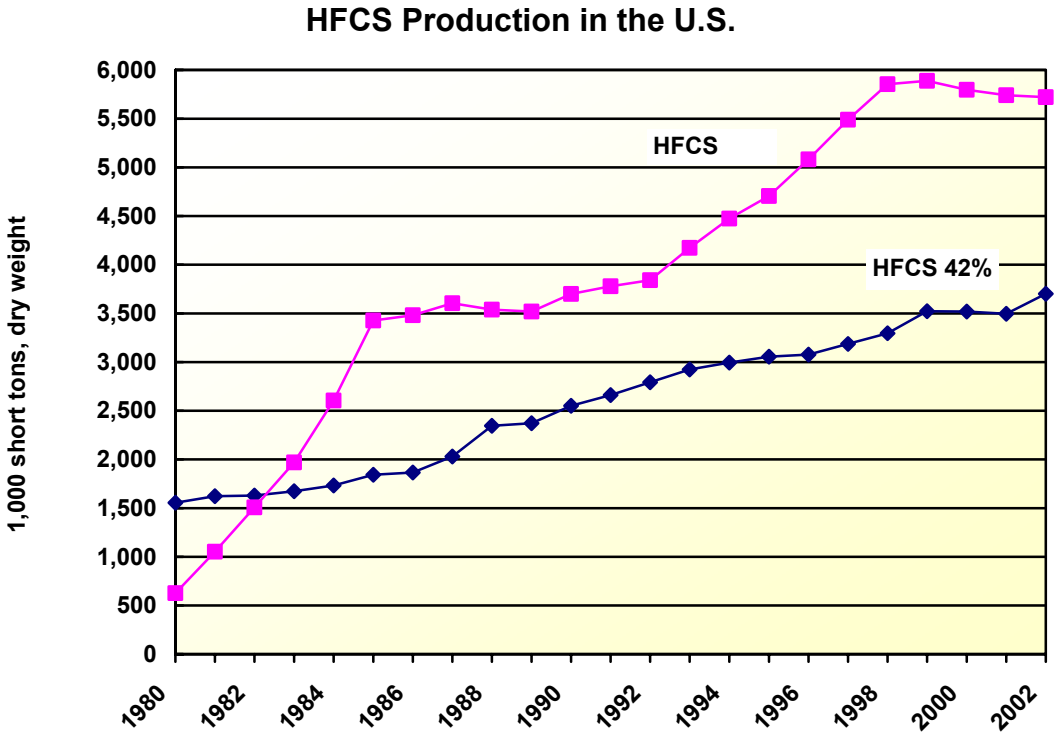


Total Production: 9,008 million bu.

** Residual use: All other uses.*

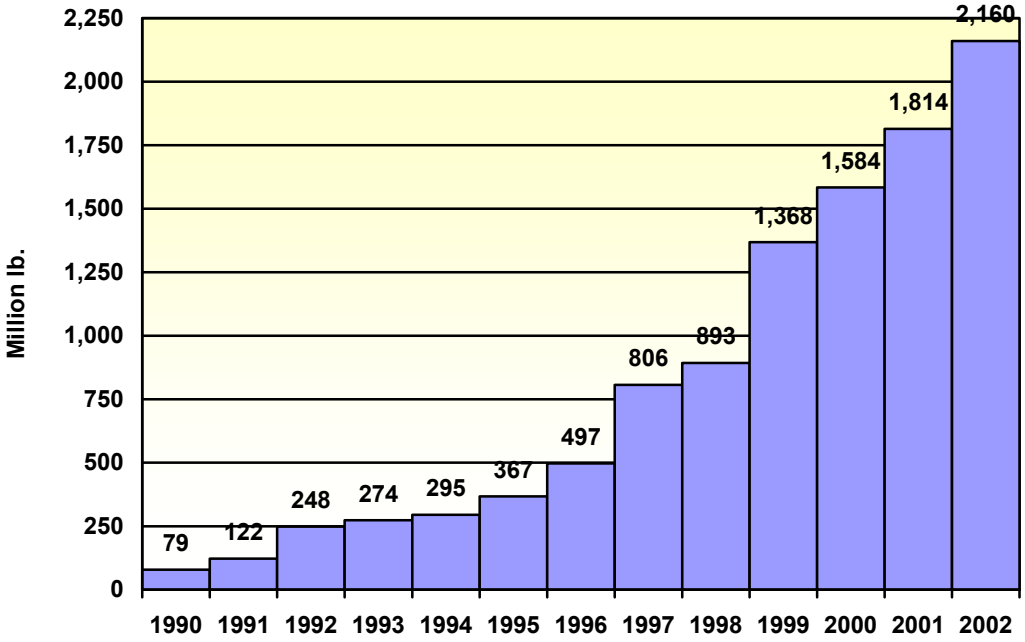
Source: PRX.


Industrial Uses of Corn in the U.S.
Corn Sweeteners
Corn Starch
Ethanol
Million bu.
900
800
700
600
500
400
300
200
100
0
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001


HFCS Production in the U.S.
HFCS
HFCS 42%
1,000 short tons, dry weight
6,000
5,500
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002

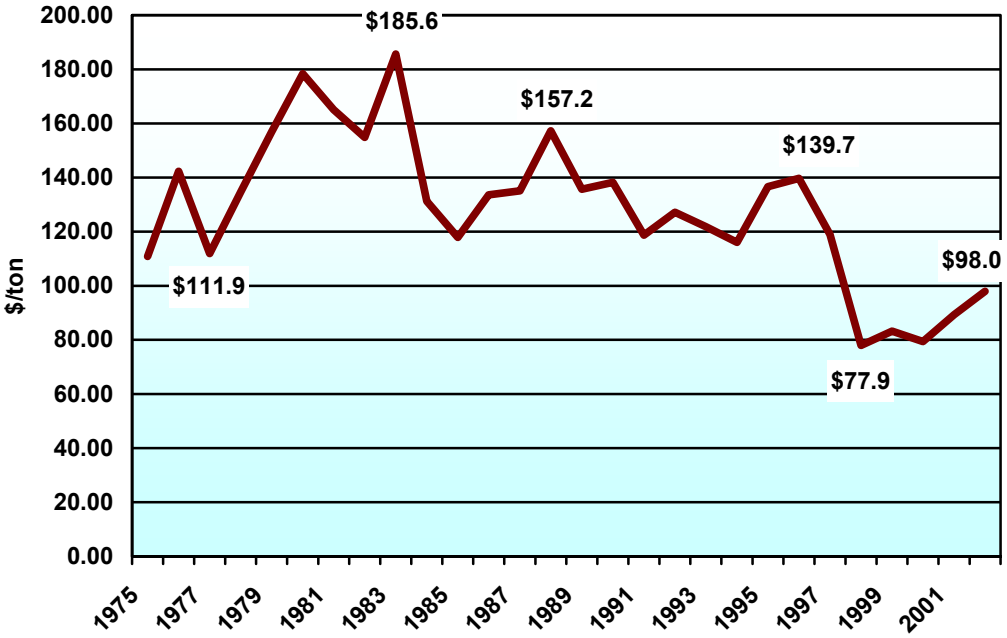
Source: USDA.

Minnesota DDG Production



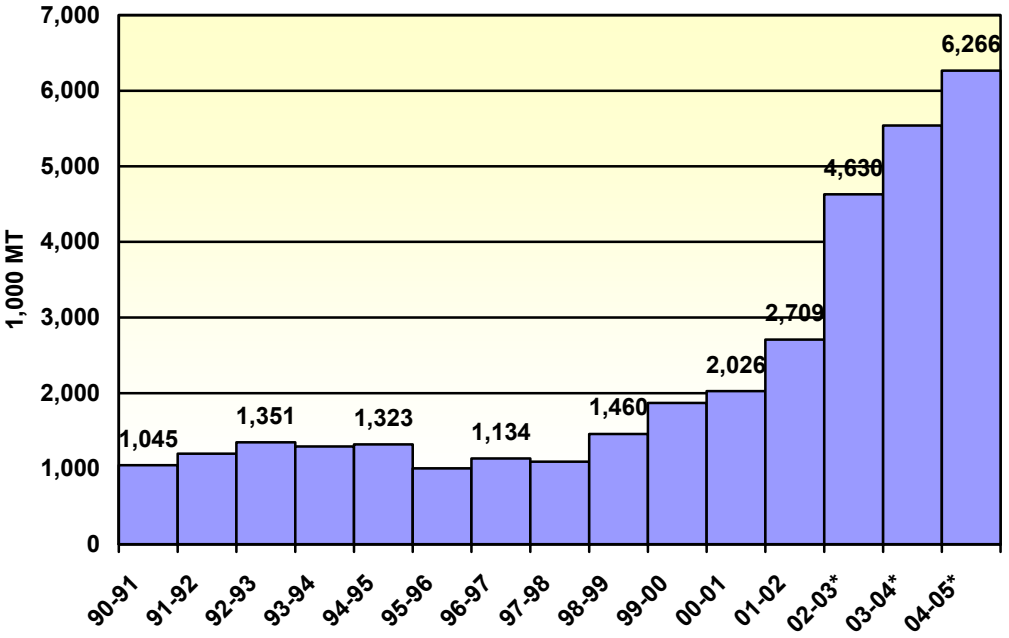
DDG Prices

Annual Average (1975-2002)- IL point



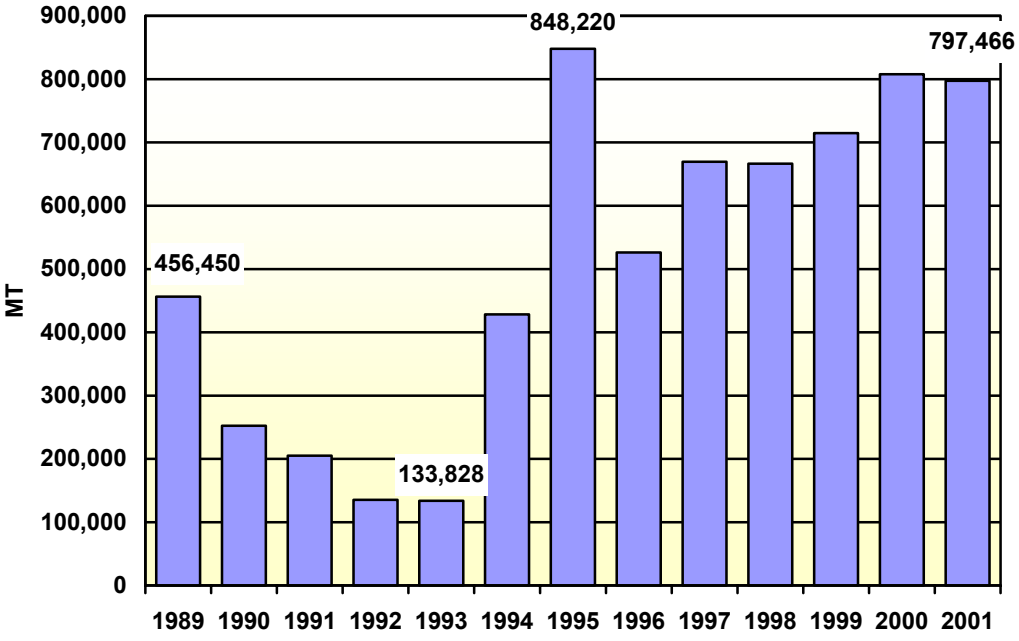
Source: USDA.

U.S. DDG Production

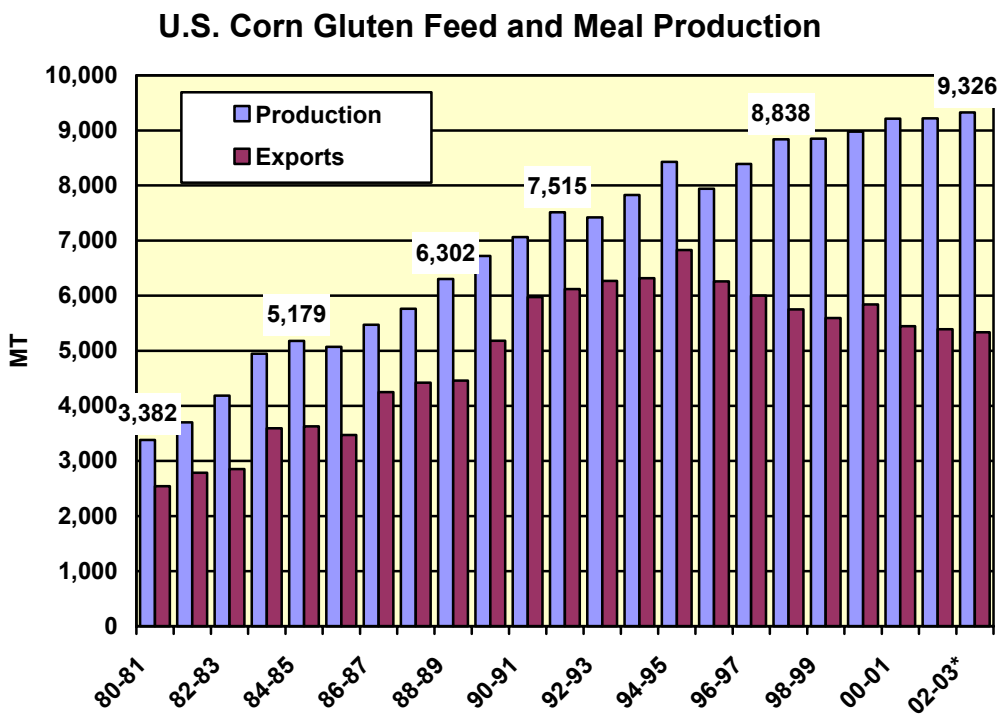


**Projected.*
Source: PRX.

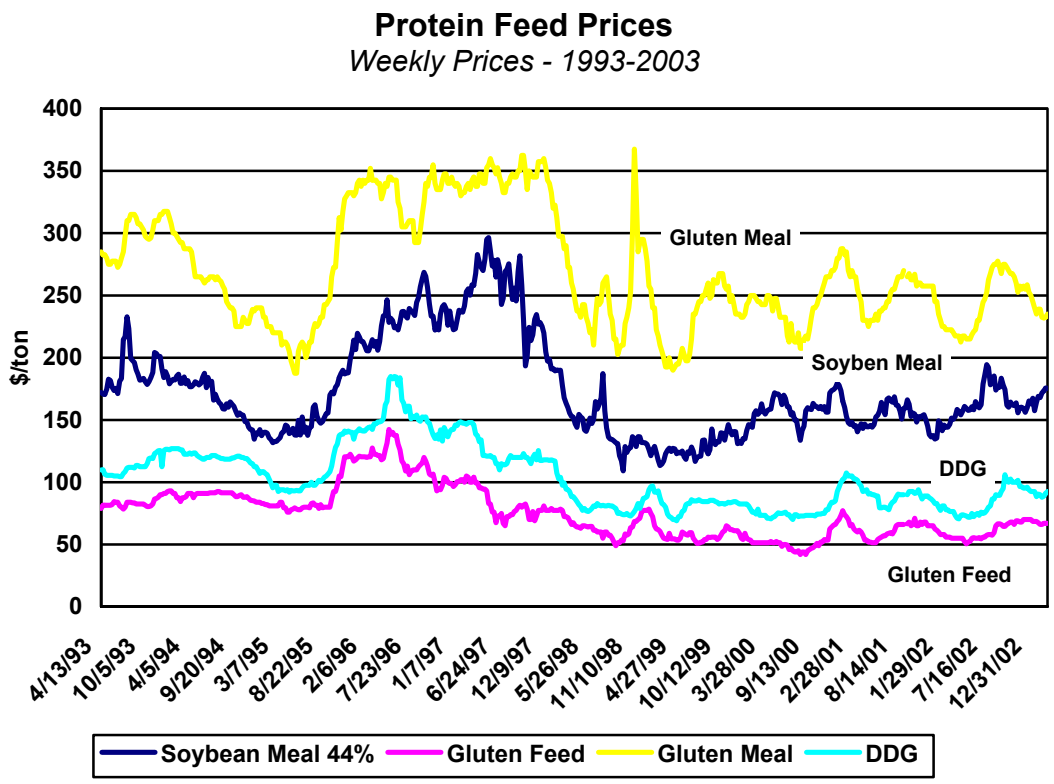
U.S. DDG Exports



Source: USDA, FAS.

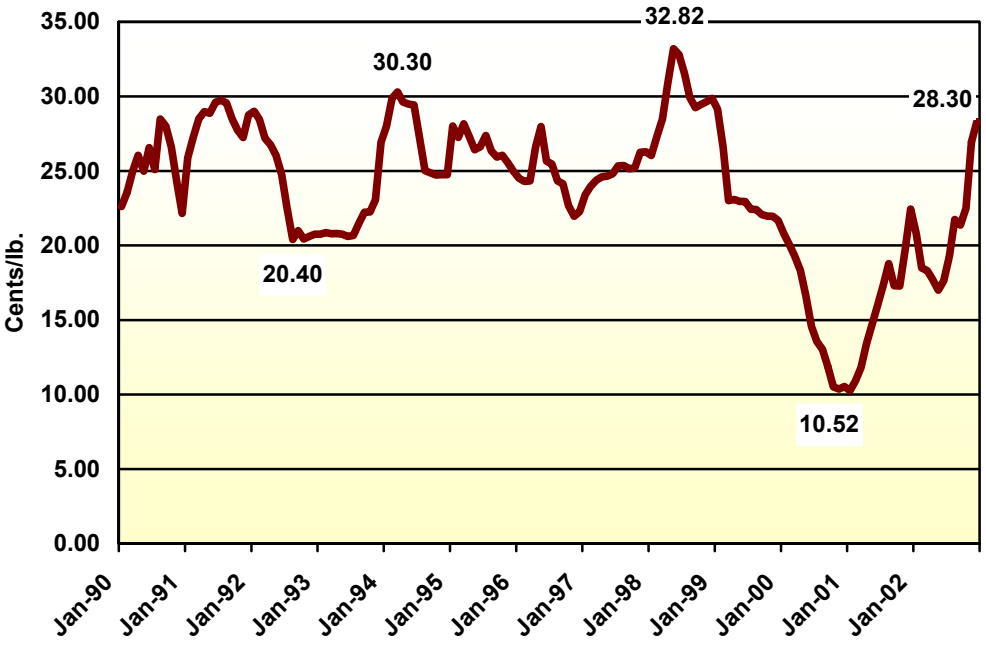


*Projected.
Source: PRX.

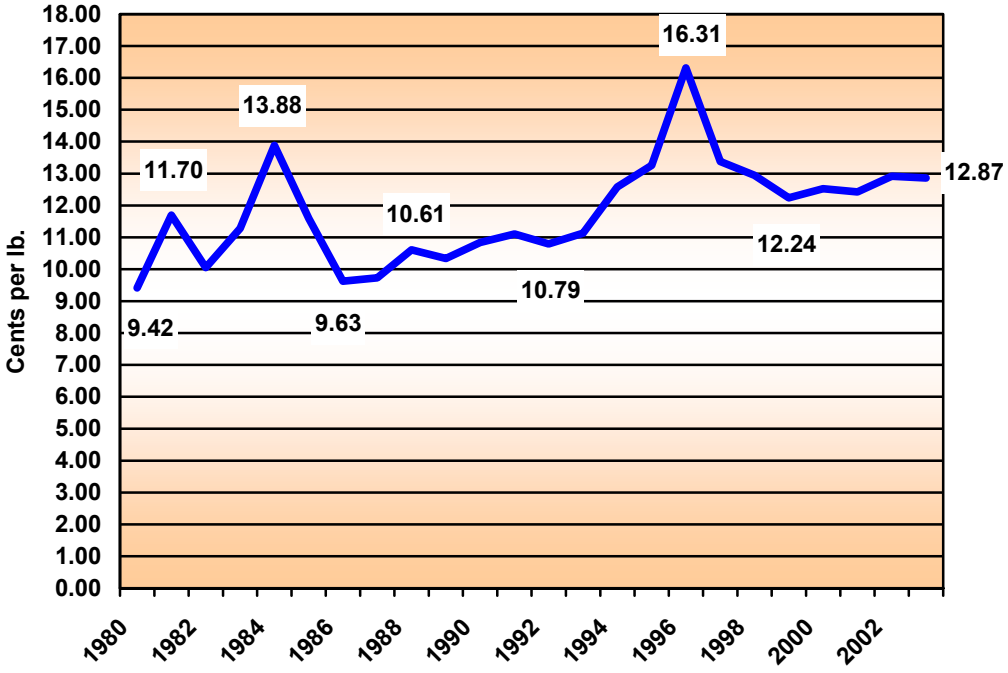


Source: USDA.

Corn Oil Prices
Midwest



Corn Starch Prices



Source: USDA, AMS, Market News Service.

For more information, please contact:

Su Ye
Program Leader, Market Research
Minnesota Department of Agriculture
90 West Plato Boulevard
St. Paul, MN 55107
Tel: 651-296-6384
Fax: 651-296-6890
E-mail: su.ye@state.mn.us