

Hog Industry Ask Where All the Pigs Came From?

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The year of 2001 resulted in pork supplies being up 1.1% with prices averaging \$45.78 per live hundredweight. Increasing supplies were a result of growing imports of live hogs from Canada and heavier marketing weights, as the breeding herd in the U.S. continued to move slightly lower. The last quarter of 2001 toppled what had been an excellent profit year for hog producers as slaughter grew a surprising 2.4%, possibly indicating that the USDA continues to under count hog inventories.

For 2002, production is expected to rise by about 1% with prices averaging in the \$41 to \$45 range. The best of the prices are expected in the late spring and early summer. By fall, prices could drop back to breakeven levels.

The breeding herd continued to shift out of the Eastern Corn Belt in 2001, and toward the Southern Plains, a trend which has been occurring since about 1997.

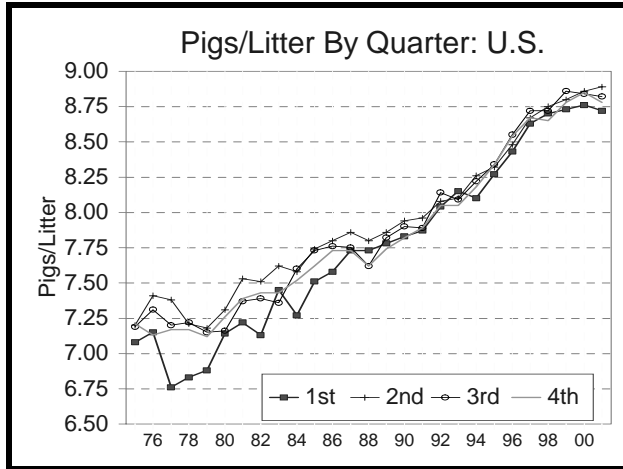
The Numbers

The big mystery has been where did all of the hogs come from in the fourth quarter when slaughter was up by an estimated 2.4%, especially when the September report indicated that slaughter would be up down nearly .8%. A bit of this 3.2% inconsistency was explained by USDA revising upward the spring pig crop by 1.3%. This was composed of a .9% higher level of sow farrowings and a .4% increase in the pigs per litter. It is difficult to explain the rest of the difference. Some would argue that mild fall winter contributed to rapid weight gains and helped advance marketings. Also imports from Canada could have surged in the last quarter (trade data lags about two months).

Another conclusion is the USDA continues to underestimate the total breeding herd inventory as well as the market inventory. If so, this may mean that slaughter supplies will remain high into 2002, If slaughter supplies do not moderate into January, hog prices will not be able to recover as much as suggested in my analysis.

As shown in Table 1, the breeding herd was reported to be down by 1% with the market herd down .6%. These numbers indicate little change in the overall size of the U.S. breeding herd in 2000 or 2001. Farrowing intentions for the winter are a robust 3.4% higher. This will be difficult to achieve with the size of breeding herd reported by USDA. On the other hand, if this level of farrowings is to be achieved it is likely that the size of the December 1, 2001 breeding herd will have to be revised higher in later reports. Producers report they will farrow 1.2% more sows in the spring quarter. This is much more in alignment with the current size of the breeding herd.

Figure 1 U.S. Pigs per Litter by Quarter



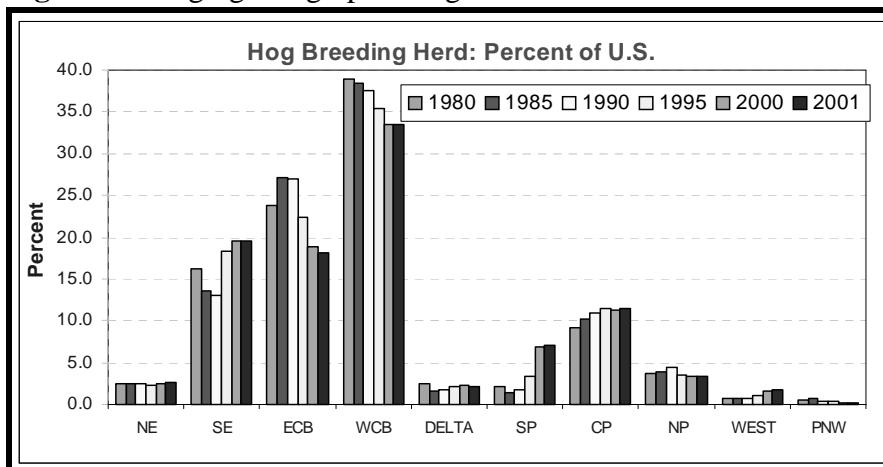
Pigs per litter were revised lower for most of the 2001 quarters. In fact the weaning rate is now reported as actually being down in 2001 from the previous year in three of the four quarters. Only the spring quarter (2nd) had higher rates than last year as shown in **Figure 1**. The conclusion is that weaning rates have reached near their maximum for now, and that the industry will have to turn to other ways to increase sow productivity in the future. Of course there is also the possibility that too few pigs are being reported by USDA, and that weaning rates are still increasing some. Time will tell.

Location of the Breeding Herd

As mentioned earlier, the breeding herd size has been relatively constant over the past two years. However, the location of the herd continues to migrate, with decreases in the Eastern Corn Belt and movement toward the Southern Plains. **Figure 2** helps to highlight these geographic changes since 1980.

Figure 2 shows the percent of the breeding herd in each geographic region since 1980 at five year intervals, as well as for 2001. This data is from the USDA December 1 inventory numbers. You can see that the major loss, measured as a percentage of the nation's breeding herd, has been in the Midwest. The Eastern Corn Belt had a reduction of 5.7 national percentage points, and the Western Corn Belt a 5.4 national percentage point reduction. The shifting was of course to the Southeast (SE) from 1990 to 1997. Since 1995, the shifting has been more toward the Southern Plains (Texas and Oklahoma) and to the West (Utah). In 2001, the states that decreased their breeding herd numbers was led by Indiana (-35,000) and Minnesota (-30,000).

Figure 2 changing Geographic Regions of the U.S.



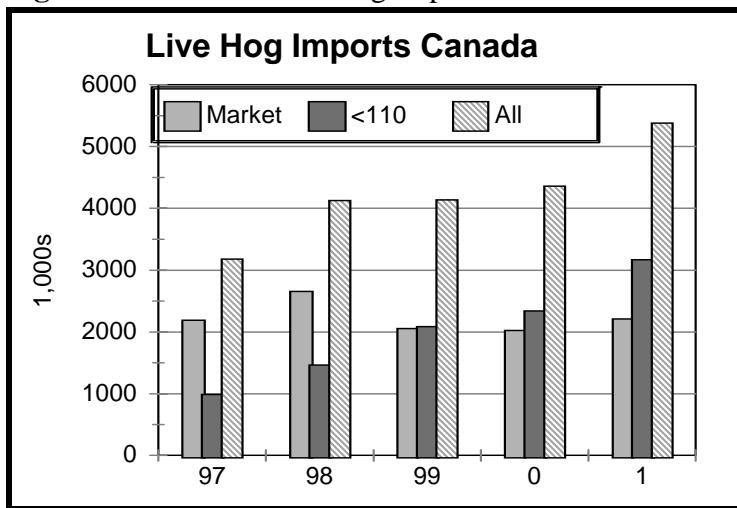
As a region in 2001, the Eastern Corn Belt decreased by 55,000 animals when 10,000 head declines each for Ohio and Wisconsin were added to Indiana. Growth states were led by Texas with the addition of 15,000 animals, and Arizona with 12,000. Apparently, some existing hog facilities

were repopulated there last year.

Canadian Supplies Continue Upward

In contrast to the United States, the Canadian herd has been growing during the past two years, and more of these hogs are moving to the U.S. for finishing and slaughter. As shown in **Figure 3**, the number of live hogs imported from Canada has been on the rise, growing from 3.2 million head in 1997 to 5.4 million head in 2001. The number being imported as market hogs has not changed very much since 1997 in a range from 2 to 2.5 million head per year. What has changed is the number of young pigs being imported for finishing and eventual slaughter in the U.S. Young pigs imported has mushroomed from 1 million head in 1997 to 3.2 million last year.

Figure 3: Canadian Live Hog Imports



These are pigs farrowed in Canada and contractually coordinated with nursery and finishing operations in the U.S.

The USDA currently expects the number of hogs imported from Canada to rise again in 2002 by an additional 4% to 5.6 million head which will represent 5.7% of our estimated 98.2 million head slaughter for the year.

The reasons for the expansion in Canada have been due to the ability to site sow units in less heavily populated areas, especially in the

prairie provinces of Manitoba and Saskatchewan. Governments and farmers in those provinces have been anxious to find ways to add value to the low priced grains. On the other hand, there is excess packing capacity in the Western Corn Belt which means that hogs have to be imported for processing. Family farmers in that region have been willing to build finishing units and finish these hogs on contract. The U.S. dollar has been strong in relation to the Canadian dollar. This provides an incentive to sell hogs in the U.S., and then convert the proceeds back into Canadian dollars. Finally, the processing industry is more efficient in the U.S. than it is in Canada, providing additional incentives to move the pigs to the U.S.

Supplies and Prices

For the year 2001, pork supplies were up 1.1%, with nearly all of the increase coming from heavier weights. Carcass weights increased to 195.5 pounds, an increase from 193.2 pounds the previous year.

In 2002, pork production is expected to grow again by 1.1%, Slaughter is expected to rise by .4% with weights up .7% to 196.9 pounds per carcass. The quarterly changes in slaughter rates as

estimated from the government inventory are as follows: 1st quarter-down 1.7%; 2nd quarter-down .2%; 3rd quarter-up 3.7%; and the 4th quarter-up .1%. As you can see, the expected slaughter rate is similar to last year with the exception of the third quarter which reflects the increase in farrowings this winter. Estimates of quarterly production numbers are shown in Tables 2, 3 and 4, as well as below.

PRODUCTION		Production	Percent
Year	Quarter	Million#s	Change vs. Year-ago
1997	Year	17,244	0.9%
1998	I	4,688	11.8%
	II	4,429	8.3%
	III	4,625	10.3%
	IV	5,239	9.9%
		18,981	10.1%
1999	I	4,865	3.8%
	II	4,630	4.5%
	III	4,672	1.0%
	IV	5,110	-2.5%
		19,277	1.6%
2000	I	4,824	-0.8%
	II	4,478	-3.3%
	III	4,606	-1.4%
	IV	5,010	-2.0%
		18,918	-1.9%
2001	I	4,805	-0.4%
	II	4,544	1.5%
	III	4,547	-1.3%
	IV	5,225	4.3%
		19,121	1.1%
2002	I	4,752	-1.1%
	II	4,566	0.5%
	III	4,749	4.4%
	IV	5,260	0.7%
		19,327	1.1%

PRICES		Liveweight	Percent
Year	Quarter	Price \$/cwt.	Change vs. Year-ago
1997	Year	\$51.40	-3.6%
1998	I	\$34.74	-32.0%
	II	\$39.42	-30.0%
	III	\$33.95	-37.6%
	IV	\$19.30	-55.8%
		\$31.85	-38.0%
1999	I	\$28.83	-17.0%
	II	\$35.18	-10.8%
	III	\$35.70	5.2%
	IV	\$36.29	88.0%
		\$34.00	6.7%
2000	I	\$41.14	42.7%
	II	\$50.43	43.3%
	III	\$46.43	30.1%
	IV	\$40.78	12.4%
		\$44.70	31.5%
2001	I	\$42.83	4.1%
	II	\$52.05	3.2%
	III	\$51.05	10.0%
	IV	\$37.17	-8.9%
		\$45.78	2.4%
2002	I	\$42.63	-0.5%
	II	\$47.79	-8.2%
	III	\$44.10	-13.6%
	IV	\$36.80	-1.0%
		\$42.83	-6.4%

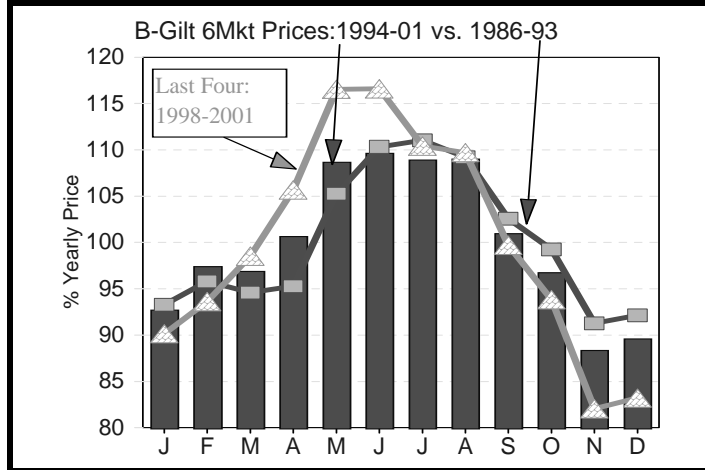
Prices are the national base lean values for 51%-52% lean carcasses converted to a liveweight by multiplying times .74 (a 74% conversion of live to carcass weights). For the entire year of 2002, prices are expected to average \$42.83 compared to \$45.78 for 2001. The first concern will come in the first quarter when my models are saying prices will average \$42.63. In the first two weeks of January, prices have averaged \$38.70, thus a

fairly substantial increase in prices must occur to reach that average for the quarter. What will have to occur to reach these stronger prices? The first is that the rate of slaughter will have to taper off from the last quarter of 2001. This has already been discussed in other sections, but there have been more hogs coming to market than USDA inventories would suggest. If the rate does not drop in January, then the market must conclude that inventory numbers are underestimated, and hog prices are not likely to reach the averages I have estimated.

Spring prices should continue to recover reaching an average in the higher \$40s. The larger supplies coming from the increased winter farrowings is expected to depress summer prices such that they may average around \$44. The final quarter of the year is expected to have depressed prices once more with prices in the mid-to-higher \$30, perhaps somewhat similar to late 2001.

Prices have tended to have greater seasonal variation in recent years with more intense highs in the late spring and early summer and more intense lows in the late fall and winter. This is illustrated in **Figure 4** which shows monthly barrow and gilt prices in a monthly index. The index simply measures what percent that month's prices are of the yearly average price. For example 90% means that month's price had averaged 90% of the average yearly price. Also in the figure are comparisons for three data periods: 1986-1993 (eight years), 1994-2001 (eight years), and the

Figure 4: Hog Price Seasonality



most recent four year period (1998-2001). You can see that both indexes for the eight year period are reasonably similar. However the most recent four years appears to be different. Prices more recently have peaked earlier in May and June, and have been relatively lower in October through February. This means that seasonality of prices has been greater during the last four years than on average over more historic time periods.

One of the ironies is that many felt that a more stable production industry that has occurred with industrialized

production might help stabilize the price pattern throughout the year. That may not be the case. One hypothesis for this reaction is that the percentage of hogs contracted has increased sharply to perhaps 75%. This means that the remaining hogs may be bid more aggressively during periods of short supply (in the late spring and summer) and less aggressively during periods of abundant supply (fall and winter). This seeming greater seasonally variation in prices may also be related to the fact that hog prices were so terribly depressed in the final quarter of 1998, and that period is having a disproportionate impact on a short run average such as the last four years used here.

Implications for the Pork Industry

The year of 2002 is expected to be a profitable one for hog producers with live prices averaging in the lower-to mid \$40s. The best of the profits are expected to come in the spring and the early part of the summer before fading late in the summer, with fall prices back to a break-even situation. There remains a question of why slaughter levels were up 2.4% in the final quarter of 2001, when USDA did not report that high of level of pig inventory, or pig crop. This brings up the important question if USDA still has the inventory count too low. For prices to rally to my expected levels for the first quarter, slaughter will have to drop back to 1% to 2% below year-ago levels. If that does not happen in January, the winter market rally can be expected to be much more modest.

The size of the sow herd has edged slightly lower over the past two years. The reason pork production increased by 1% in 2001 was due to heavier marketing weights and increasing imports of live hogs from Canada. Further increases in both factors are expected in 2002.

The seasonality of hog prices has been greater in the past four years than previously. Some of the characteristics are for prices to reach their yearly highs in late-May or June, rather than later in the summer, and for fall and winter prices to be relatively lower. For producers, this may favor doing more pricing around the early spring highs in late May and early June, including more aggressive forward selling for fall and winter delivery hogs.

Table 1. Hogs and Pigs in the United States, December 1, 2001

	2000	2001	2001 as % of 2000
	thousand head		percent
Inventory			
All hogs and pigs	59,138	58,774	99.4
Kept for breeding	6,270	6,209	99.0
Kept for market	52,868	52,564	99.4
Market hogs by weight			
Under 60 pounds	19,421	19,304	99.4
60-119	12,933	12,750	98.6
120-179	10,846	10,792	99.5
180 and over	9,669	9,718	100.5
Sows farrowing			
June 01 - Aug 01	2,889	2,838	98.2
Sept 01 - Nov 01	2,838	2,846	100.3
Dec 01 - Feb 02 ¹	2,748	2,842	103.4
Mar 02 - May 02 ¹	2,870	2,904	101.2
Pigs saved per litter			
June 01 - Aug 01	8.84	8.82	99.8
Sept 01 - Nov 01	8.85	8.78	99.2
Pig crop			
June 01 - Aug 01	25,548	25,029	98.0
Sept 01 - Nov 01	25,112	24,972	99.4

¹ Intentions

Table 2. U.S. Market Hogs Weighing 60 to 179 Pounds on Dec 1 (previous year), and Commercial Slaughter in Calendar Quarter from January through March

Years ^c	Number of Hogs	Jan-March	Ratio
	60 to 179 Pounds	Commercial Slaughter	
thousand head			
1990	21,856	21,883	100.1
1991	21,847	21,508	98.4
1992	23,351	23,802	101.9
1993	23,266	23,057	99.1
1994	22,871	22,746	99.5
1995	24,028	24,229	100.8
1996	23,510	23,650	100.6
1997	22,402	22,342	99.7
1998	24,507	24,776	101.1
1999	25,216	25,571	101.4
2000	24,180	25,019	103.5
2001	23,779	24,574	103.3
2002	23,542	24,187	102.7 ^b

^a Projected

^b Mean of previous three years

^c December of previous year

Table 3. U.S. Sow Farrows and Pig Crop Compared to U.S. Commercial Slaughter (thousand head), with 7-month Lag 1991 to 2002

Year	Sows Farrow	Pig Crop	Ratio	Commercial		
				Year	Slaughter	Ratio ^b
June-August				January-March		
1991	3,105	24,499	7.89	1992	23,802	97.4
1992	3,020	24,590	8.14	1993	23,057	93.8
1993	2,972	24,041	8.09	1994	22,746	94.6
1994	3,107	25,547	8.22	1995	24,229	94.8
1995	2,976	24,813	8.34	1996	23,650	95.3
1996	2,718	23,244	8.55	1997	22,342	96.1
1997	2,946	25,696	8.72	1998	24,776	96.4
1998	3,054	26,634	8.72	1999	25,571	96.0
1999	2,920	25,862	8.86	2000	25,019	96.7
2000	2,889	25,548	8.84	2001	24,574	96.2
2001 ^a	2,838	25,029	8.82	2002	24,106	96.3
September-November				April-June		
1991	2,969	23,427	7.89	1992	22,202	94.8
1992	2,992	24,086	8.05	1993	22,661	94.1
1993	2,982	24,003	8.05	1994	22,965	95.7
1994	2,997	24,517	8.18	1995	23,646	96.5
1995	2,815	23,479	8.34	1996	22,201	94.6
1996	2,731	23,327	8.54	1997	21,834	93.6
1997	2,939	25,494	8.67	1998	23,631	92.7
1998	2,993	25,902	8.66	1999	24,292	93.8
1999	2,844	24,973	8.78	2000	23,107	92.5
2000	2,838	25,112	8.85	2001	23,273	92.7
2001	2,846	24,972	8.78	2002	23,223	93.0
December-February				July-September		
1991	2,892	23,258	8.04	1992	23,746	102.1
1992	2,808	22,871	8.15	1993	22,777	99.6
1993	2,885	23,368	8.10	1994	23,673	101.3
1994	2,886	23,851	8.27	1995	23,264	97.5
1995	2,735	23,054	8.43	1996	22,711	98.5
1996	2,684	23,164	8.63	1997	22,669	97.9
1997	2,929	25,480	8.70	1998	25,038	98.3
1998	2,891	25,247	8.73	1999	24,960	98.9
1999	2,798	24,522	8.76	2000	24,097	98.3
2000	2,748	23,963	8.72	2001	23,631	98.6
2001	2,842	24,868	8.75	2002	24,515	98.6
March-May				October-December		
1991	3,287	26,158	7.96	1991	24,367	93.2
1992	3,368	27,208	8.08	1992	25,138	92.4
1993	3,220	26,135	8.12	1993	24,574	94.0
1994	3,390	27,984	8.26	1994	26,322	94.1
1995	3,170	26,373	8.32	1995	25,198	95.5
1996	2,930	24,833	8.48	1996	23,833	96.0
1997	2,911	25,229	8.67	1997	25,152	99.7
1998	3,086	26,989	8.75	1998	27,584	102.2
1999	2,986	26,272	8.80	1999	26,732	101.8
2000	2,885	25,565	8.86	2000	25,714	100.6
2001	2,870	25,509	8.89	2001	26,331	103.2
2002 ^a	2,904	25,875	8.91	2002	26,354	101.9

^a Projected

^b Ratio for most recent time periods are the mean of previous three years

Table 4. U.S. Commercial Slaughter, Slaughter Carcass Weights, and Quarterly Pork Production 1990-2002

Year	Quarter	Commercial Slaughter (thou. hd.)	Carcass Weight Per Hog	Pork Production (mill. #'s)	Percent Change Year-Ago
1990	I	21,879	178.3	3,902	+4
	II	20,257	179.9	3,645	-7.2
	III	20,350	178.8	3,639	-4.0
	IV	22,628	181.4	4,105	-1.2
1991	I	21,508	181.4	3,902	0.0
	II	20,921	181.3	3,792	4.0
	III	21,371	178.8	3,822	5.0
	IV	24,365	182.0	4,434	8.0
1992	I	23,802	181.5	4,321	10.7
	II	22,202	181.7	4,033	6.4
	III	23,746	179.6	4,264	11.6
	IV	25,138	181.7	4,567	3.0
1993	I	23,057	182.5	4,207	-2.6
	II	22,661	183.2	4,151	2.9
	III	22,777	181.7	4,138	-3.0
	IV	24,573	184.5	4,534	-0.7
1994	I	22,746	183.9	4,182	-0.6
	II	22,965	184.6	4,240	2.1
	III	23,673	182.7	4,326	4.5
	IV	26,322	186.6	4,913	8.4
1995	I	24,229	185.2	4,488	7.3
	II	23,646	185.8	4,394	3.6
	III	23,264	182.3	4,240	-2.0
	IV	25,198	186.1	4,690	-4.5
1996	I	23,650	185.6	4,389	-2.2
	II	22,201	184.9	4,104	-6.6
	III	22,711	182.4	4,143	-2.3
	IV	23,833	186.7	4,449	-5.1
1997	I	22,342	187.7	4,194	-4.4
	II	21,834	187.4	4,091	-0.3
	III	22,666	185.0	4,196	1.3
	IV	25,152	189.5	4,766	7.1
1998	I	24,776	189.2	4,688	11.8
	II	23,631	187.5	4,429	8.3
	III	25,038	184.7	4,625	10.2
	IV	27,523	188.9	5,239	9.9
1999	I	25,571	190.3	4,865	3.8
	II	24,292	190.6	4,630	4.5
	III	24,960	187.2	4,672	1.0
	IV	26,732	191.2	5,110	-2.5
2000	I	25,019	192.8	4,824	-0.8
	II	23,107	193.8	4,478	-3.3
	III	24,097	191.1	4,606	-1.4
	IV	25,714	194.8	5,010	-2.0
2001	I	24,574	195.5	4,805	-0.4
	II	23,273	195.2	4,544	1.5
	III	23,631	192.4	4,547	-1.3
	IV ^p	26,331	198.4	5,225	4.3
2002	I ^{ac}	24,147	196.8	4,752	-1.1
	II ^a	23,223	196.6	4,566	0.5
	III ^a	24,515	193.7	4,749	4.4
	IV ^a	26,354	199.6	5,260	0.7

a Projected

c Average of the two estimation methods (Table 2 and 3)

p Preliminary

Table 5. Actual and Forecast Hog Prices, Lean Carcass Prices, and Retail Pork Prices^a

Year	Quarter	Barrow and Gilts 6-Mkt Price (\$/cwt)	Lean Value (Live Price/74 yield) (\$/carcass cwt)	Retail Pork ¢/carcass cwt
1990	I	\$49.45	\$66.82	196.2
	II	\$59.01	\$79.74	208.4
	III	\$57.67	\$77.93	222.6
	IV	\$51.67	\$69.82	223.1
1991	I	\$51.50	\$69.59	215.2
	II	\$53.34	\$72.08	213.2
	III	\$50.85	\$68.72	214.6
1992	IV	\$39.84	\$53.84	204.6
	I	\$38.68	\$52.27	198.9
	II	\$44.83	\$60.58	195.9
	III	\$43.86	\$59.27	200.6
1993	IV	\$41.84	\$56.54	197.0
	I	\$43.96	\$59.41	194.6
	II	\$46.83	\$63.28	194.3
	III	\$47.49	\$64.18	200.2
1994	IV	\$43.23	\$58.42	201.3
	I	\$45.19	\$61.07	200.8
	II	\$42.44	\$57.35	198.8
	III	\$40.07	\$54.15	199.0
1995	IV	\$30.56	\$41.30	193.6
	I	\$38.19	\$51.61	191.6
	II	\$38.57	\$52.12	190.2
	III	\$48.32	\$65.30	195.6
1996	IV	\$42.86	\$57.92	201.8
	I	\$45.33	\$61.26	206.3
	II	\$54.84	\$74.11	214.9
	III	\$57.96	\$78.32	230.4
1997	IV	\$55.10	\$74.46	231.9
	I	\$51.06	\$69.00	231.0
	II	\$56.41	\$76.23	229.7
	III	\$54.45	\$73.58	234.5
1998	IV	\$43.69	\$59.04	231.0
	I	\$34.74	\$46.95	233.0
	II	\$39.42	\$53.27	226.9
	III	\$33.95	\$45.88	231.0
1999	IV	\$19.30	\$26.08	226.9
	I	\$28.83	\$38.96	235.8
	II	\$35.18	\$47.54	238.4
	III	\$35.70	\$48.24	246.4
2000	IV	\$36.29	\$49.04	245.2
	I	\$41.14	\$55.59	249.8
	II	\$50.43	\$68.15	257.3
	III	\$46.43	\$62.74	264.3
2001	IV	\$40.78	\$55.11	261.3
	I	\$42.83	\$57.88	262.5
	II	\$52.05	\$70.34	267.0
	III	\$51.05	\$68.99	275.0
2002	IV ^p	\$37.17	\$50.23	272.2
	I ^a	\$42.63	\$57.61	
	II ^a	\$47.79	\$64.58	
	III ^a	\$44.10	\$59.59	
	IV ^a	\$36.80	\$49.73	

^a Predicted prices for 2001 (III) forward are made with two equations with the results averaged.

^p Preliminary