Exhibit 43

BEFORE THE CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

PUBLIC HEARING TO CONSIDER AMENDMENTS TO THE CLASS 2, 3, 4A, AND 4B MILK PRICING FORMULAS AS PROVIDED IN THE STABILIZATION AND MARKETING PLANS FOR MARKET MILK

TESTIMONY AS AN EXPERT WITNESS ON BEHALF OF MILK PRODUCERS COUNCIL AT CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE HEARING REGARDING PROPOSED AMENDMENTS TO THE MILK STABILIZATION PLANS

Respectfully Submitted,

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My name is Robert Cropp. I am currently Professor of Agricultural and Applied Economics at the University of Wisconsin-Madison. I have specialized in dairy marketing and policy through out my professional career, some 31 years. I also am the Director of the University of Wisconsin Center for Cooperatives where I work closely with agricultural cooperatives of all types, but particularly with dairy cooperatives.

I have conducted extensive research in dairy marketing and milk pricing. Most recently I served as a member of the University Study Committee which just completed an evaluation of alternatives to establish the Basic Formula Price under federal milk marketing orders. I do milk price forecasting and teach price risk management in my extension work which extends from Wisconsin to regional and national activities. Further, I have written numerous extension publications on various aspects of milk pricing and dairy policy.

The Milk Producers Council has asked me for the purposes of these hearings to provide an explanation of how the Basic Formula Price (BFP) under federal orders is calculated and how whey values are reflected in the resulting BFP price.

Basic Formula Price Calculation

First, let me review how the Basic Formula Price is determined each month. The BFP consists of two parts, a competitive pay price for the preceding month (referred to as the base month price) and a product price formula update for the current month. The base month price is determined by a survey of manufacturing plants in Minnesota and Wisconsin asking them what they paid dairy producers for Grade B milk for the preceding month. The product price formula update computes a product price value for the current month and the preceding month. The change in value is added/subtracted from the base month price to give the current month BFP. Through the product price formula the BFP recognizes changes in the value of milk used to manufacture cheddar cheese, butter, and nonfat dry milk from the survey month (preceding month) to the current month. It is important to note that this change in value is based on the proportion of milk used in the production of butter-nonfat dry milk and in the production of American cheese in the Minnesota and Wisconsin area. Nonfat dry milk is used to compute the butter-nonfat dry milk weighing factor because significant proportions of butter are manufactured in Minnesota and Wisconsin from butterfat that is in excess of fluid milk operations. Cheese accounts for about 90 to 95 percent of the milk used in these products in the two states. Therefore, cheese and whey products are the primary determinate of the BFP.

The key points related to the BFP calculation: B milk

- The BFP is based on what dairy plants will pay for Grade in Minnesota and Wisconsin given the competitive conditions in the market place at that given time;
- Although the Grade B supply has declined greatly, the price that dairy plants are willing to pay for Grade B reflects the competitive value of that milk.

Further the pay price for the Grade B milk supply must compete with the pay price for the Grade A milk supply for cheese production.

- Dairy plants purchasing Grade B milk in the region must compete in the national market place for dairy products.
- The final BFP value reflects the combination effects of product yields and values, by-product yields and values, plant operating costs and rigorous competition.
- With about 90 percent of the milk used for manufacturing in the Minnesota and Wisconsin area used to make cheese, cheese and whey product values are the primary determinants of the BFP.

Whey Production Potential and Disposition

Total American Cheese production in Minnesota and Wisconsin for 1995-1996 is shown in table 1. Using a .56 pound yield of dry whey for each pound of cheese, an estimate of the total whey production from the production of American cheese can be calculated. This potential production of dry whey is shown in table 1 along with actual dry whey production in the two states. Data clearly show that the potential whey is utilized for dry whey and further refined whey (whey protein concentrates) production for the commercial markets in Minnesota and Wisconsin. Minnesota and Wisconsin account for more than 55 percent of U.S. dry whey production (chart 1). In addition, Minnesota and Wisconsin both process whey protein concentrates, which is a growing value-added activity. The shift to the production of more whey protein concentrate is shown in Tables 1 and 1a. Table 1a shows dry whey and whey protein concentrate production for Wisconsin. Wisconsin's production of whey protein concentrate for human food increased 137.5 percent from 1990 to 1996. Much of this increase is due to a switch from dry whey production for animal feed to the higher valued whey protein concentrate. Wisconsin's dry whey for animal feed declined 72.4 percent from 1990 to 1996. Data for Minnesota are not available for publication, but it is well known that the trend to more whey protein concentrate is similar to that shown for Wisconsin.

The amount of potential whey being actually processed is further documented by a Wisconsin Agricultural Statistics Service survey of Wisconsin cheese plants in 1992. The survey results showed whey utilization as follows:

- 74 percent processed at the plant site
- 10 percent shipped as liquid whey to other plants for further processing
- 12 percent shipped in condensed form to other plants
- 3 percent by land spreading
- 1 percent returned to farms to be fed to livestock

The survey results indicate that 96 percent of the whey in Wisconsin is further processed.

Wisconsin and Minnesota cheese manufacturers, both cooperatives and investor-owned firms, have made major capital investments in whey processing equipment to produce whey protein concentrates. The reason for this increased investment is to add additional value to whey, to improve plant margins and to improve producer pay prices. A recent study by AG-NOMICS Research Associates (1992) for the Wisconsin Milk Marketing Board and other studies show a strong growth potential for whey protein concentrate markets, both domestic and international..

Key points on whey production and use:

- Almost all whey in Minnesota and Wisconsin is further processed.
- Many Wisconsin and Minnesota cheese plants have made major investments in further whey processing in order to add value to their milk and by-products streams.
- Most cheese plants that procure Grade B milk also procure Grade A milk. Data provided by NASS for 1996 show there were 140 plants surveyed for the BFP base month price. Of these, 13 purchased Grade B milk only and accounted for 15 percent of the Grade B milk purchased by the 140 plants. The other 127 purchased both Grade B and Grade A milk. Therefore, most of the whey from cheese made from Grade B milk gets processed along with the whey from cheese made from Grade A milk.
- Whey from both Grade B and Grade A milk is processed in on-site facilities where large volumes can be processed to achieve size economies.
- Most cheese plants that handle Grade B milk only sell their whey for further processing. Field spreading is almost non-existent.
- Most cheese plant operators realize a net return on whey over handling or processing cost. In fact, some operators in Minnesota and Wisconsin claim that whey profits have made the difference between a profitable or unprofitable business.

Whey's value in the Basic Formula Price

The net returns from whey, and its contribution to the BFP, can be estimated by using a product price formula for the whey component of cheese making. Returns cannot be estimated precisely for all the whey products. However, using dry whey is a reasonable basis from which to provide a conservative estimate of whey returns generally.

Processing whey protein concentrates requires further investment and generally more plants are investing in plants and equipment to generate higher returns to whey. That is, getting into the whey protein concentrate business.

The dry whey product price formula is:

Dry whey price minus dry whey processing cost times whey yield per hundredweight of milk.

The dry whey price used here is a weighted average price for whey powder edible, Central states and whey powder for animal feed, Central states for milk replacer. About 90 percent of the dry whey is edible grade. This net price is a very conservative price since the value of whey protein concentrates is not considered. Central state edible whey protein concentrate (34% protein) price is about 40 cents per pound higher than the dry whey price. Of courses processing costs are higher for whey protein concentrate than dry whey powder, but net margins are also normally higher.

Processing costs or make allowances for dry whey powder, naturally vary from plant to plant depending upon economies of scale and other efficiencies. Reports of make allowances range from $0.10 to $0.14 per pound range. Cornell University's 1988 engineering study for 960,000 pound cheese plant determined a whey processing cost of $0.136 per pound (Source: Whey Powder and Whey Powder and Whey Concentrate Production Technology, Costs and Profitability by Hurst, Aplin and Barbano, A.E Research Publication 90-4). Jim Hahn, Acting Market Administrator for the Chicago Regional and Indiana Federal Milk Marketing Orders estimates a reasonable average make allowance of $0.13 per pound. Mr. Hahn arrived at this based on a $.125 per pound make allowance on nonfat dry milk (class III-A) and the fact that there are slightly less solids in whey. A 1992 study of Wisconsin dairy cooperatives (Cropp, Feasibility of Joint Activities Among Dairy Cooperatives in the Processing and Marketing of Whey and Whey Products) estimated whey processing costs in the $0.13 to $0.14 range. Using an average make allowance is $0.13 per pound appears very reasonable and is used here.

The monthly net whey margin calculations for 1991-1996 are shown in table 2. As can be seen, the net whey value per hundredweight of milk has been trending higher averaging less than $0.30 per hundredweight in 1993, about $0.35 in 1994, $0.44 in 1995 and $0.52 in 1996. Monthly variations in net whey margins per hundredweight of milk during the 1994-96 period ranged as low as $0.22 to as high as $0.87.

Key points:

Dry whey returns:

	Annual Average	Monthly High	Monthly Low
1991	$0.2174	$0.6235	$0.0138
1992	$0.3982	$0.6075	$0.1480
1993	$0.2898	$0.4838	$0.1572
1994	$0.3528	$0.4882	$0.2746
1995	$0.4401	$0.8658	$0.2185
1996	$0.5199	$0.6942	$0.2932

While it is not possible to quantify precisely the added value to the BFP due to these whey values, clearly the rigorous competitive nature of the Wisconsin and Minnesota dairy industry assures that much of this net value is captured in the BFP. The following chart compares the BFP to the California class 4b price for the period of 1991 through July, 1997. Except for the period of sharp decline in cheese prices and the BFP late fall of 1996, the BFP has been considerably higher than the 4b price, about a $1.00 per hundredweight most of the time. It is very difficult to conclude that this difference can be entirely explained by differences in Wisconsin/Minnesota and California make allowances. But rather much of the difference is due to the competition among the dairy plants in Minnesota and Wisconsin and the added whey value that is reflected in pay prices to dairy producers.

A cheese plant margin in the Minnesota/Wisconsin area can be estimated by comparing the cheese value per hundredweight of milk (10 pounds of cheese X cheese price) to the BFP. A similar comparison can be done in California by comparing the cheese value of milk to the class 4b price. These margins are shown in chart 2 for 40 pound cheddar blocks using the NCE and CME prices for the period of January 1991 through July 1997. The exact dollar differences in the margins is secondary to the fact that plant margins in Minnesota and Wisconsin appear much lower and more volatile. In fact, Minnesota and Wisconsin plant margins are below $1.00 per hundredweight much of the time. Margins this low would not cover all operating costs and plants could simply not stay in business. But if $0.30 to $.50 net whey value is added to these margins, then plant margins look much more favorable. That in fact is the real situation in Minnesota and Wisconsin.

Chart 3 shows cheese plant margins in Minnesota and Wisconsin for both cheddar blocks and cheddar barrels. As would be expected, margins are lower for barrels than blocks, but follow the same pattern although the spread does vary. Processing costs are lower for barrels than blocks and therefore margins can be lower for barrels.

Up to this point the value of lactose has not been mentioned. The fact is, lactose is also processed by the larger cheese operations and at a net return. Over the past two years, lactose has been marketed at a value of $.17 to as much as $.28 per pound. Therefore, the net value shown above for whey is really very conservative.

Key points:

- From a conservative view point (dry whey value only) whey adds $0.35 to $0.52 value to a hundredweight of milk used for cheese production.
- Without the whey value, much of the time Minnesota and Wisconsin cheese plants would experience unprofitable plant margins.

- **Rigorous plant competition in Minnesota and Wisconsin assures that much of the net added value form whey production is captured in dairy producer pay prices and hence the BFP.**

This concludes my remarks and I would be glad to respond to any questions.

Table 1. Potential and Actual Whey Production in Wisconsin and Minnesota, 1990 to 1996

Year	Total American Cheese (Million lbs)	Whey Production (Million lbs)		% of Potential
		Potential	Actual	
1990	954.4	770.2	653.6	84.9
1991	937.3	746.8	644.5	86.3
1992	959.2	759.1	661.6	87.2
1993	944.5	801.6	675.6	84.3
1994	905.9	709.0	591.2	83.4
1995	945.1	688.6	526.7	76.5
1996	965.1	703.7	506.6	72.0

Note: Only dry whey is considered in the actual whey values.

Table 1a: Whey products: Wisconsin, 1986-96 (1,000 pounds solids)

Year	Dry Whey: Human Food	Dry Whey: Animal Feed	Whey Protein Concentrate: Human Food
1986	385,755	100,788	16,715
1990	366,342	113,778	30,488
1991	376,818	109,456	43,908
1992	404,382	106,579	37,864
1993	348,075	65,567	31,201
1994	329,986	69,948	25,902
1995	321,279	56,883	78,141
1996	322,942	31,440	72,406

Source; Wisconsin 1997 Dairy Facts

Table 2. Simulated Monthly Whey Margins: Wisconsin and Minnesota, 1991-1996

Year	Month	Avg. Price	Margin Per lb.	Margin Per CWT
1991	Jan	0.1451	0.0151	0.0846
	Feb	0.1401	0.0101	0.0568
	Mar	0.1325	0.0025	0.0138
	Apr	0.1336	0.0036	0.0202
	May	0.1467	0.0167	0.0937
	Jun	0.1618	0.0318	0.1780
	Jul	0.1488	0.0188	0.1052
	Aug	0.1399	0.0099	0.0557
	Sep	0.1593	0.0293	0.1642
	Oct	0.2294	0.0994	0.5566
	Nov	0.2458	0.1158	0.6484
	Dec	0.2413	0.1113	0.6235
1992	Jan	0.2137	0.0837	0.4689
	Feb	0.1943	0.0643	0.3602
	Mar	0.2051	0.0751	0.4207
	Apr	0.2236	0.0936	0.5243
	May	0.2385	0.1085	0.6075
	Jun	0.2128	0.0828	0.4636
	Jul	0.1967	0.0667	0.3737
	Aug	0.2019	0.0719	0.4024
	Sep	0.2049	0.0749	0.4192
	Oct	0.2015	0.0715	0.4005
	Nov	0.1676	0.0376	0.2103
	Dec	0.1564	0.0264	0.1480
1993	Jan	0.1661	0.0361	0.2019
	Feb	0.1885	0.0585	0.3278
	Mar	0.1936	0.0636	0.3561
	Apr	0.1759	0.0459	0.2572
	May	0.1581	0.0281	0.1572
	Jun	0.1691	0.0391	0.2188
	Jul	0.1699	0.0399	0.2233
	Aug	0.1602	0.0302	0.1689
	Sep	0.1710	0.0410	0.2296
	Oct	0.1969	0.0669	0.3749
	Nov	0.2164	0.0864	0.4838
	Dec	0.2157	0.0857	0.4799

(continued)

Table 2. Simulated Monthly Whey Margins: Wisconsin and Minnesota, 1991-1996 (continued)

Year	Month	Avg. Price	Margin Per lb.	Margin Per CWT
1994	Jan	0.1968	0.0668	0.3740
	Feb	0.2008	0.0708	0.3965
	Mar	0.2172	0.0872	0.4882
	Apr	0.2088	0.0788	0.4411
	May	0.1828	0.0528	0.2955
	Jun	0.1825	0.0525	0.2940
	Jul	0.1922	0.0622	0.3482
	Aug	0.1937	0.0637	0.3565
	Sep	0.1928	0.0628	0.3518
	Oct	0.1878	0.0578	0.3237
	Nov	0.1812	0.0512	0.2868
	Dec	0.1790	0.0490	0.2746
1995	Jan	0.1746	0.0446	0.2497
	Feb	0.1690	0.0390	0.2185
	Mar	0.1856	0.0556	0.3111
	Apr	0.1961	0.0661	0.3699
	May	0.1859	0.0559	0.3130
	Jun	0.1718	0.0418	0.2339
	Jul	0.1821	0.0521	0.2918
	Aug	0.2027	0.0727	0.4070
	Sep	0.2241	0.0941	0.5268
	Oct	0.2506	0.1206	0.6754
	Nov	0.2769	0.1469	0.8227
	Dec	0.2846	0.1546	0.8658
1996	Jan	0.2540	0.1240	0.6942
	Feb	0.2289	0.0989	0.5539
	Mar	0.2304	0.1004	0.5620
	Apr	0.2336	0.1036	0.5800
	May	0.2161	0.0861	0.4819
	Jun	0.2186	0.0886	0.4960
	Jul	0.2240	0.0940	0.5262
	Aug	0.2408	0.1108	0.6203
	Sep	0.2422	0.1122	0.6282
	Oct	0.2181	0.0881	0.4932
	Nov	0.1824	0.0524	0.2932
	Dec	0.1863	0.0563	0.3152

Note: Weighted Central average dry whey prices used in margin calculations. Margin=Average Price - $0.13. The per CWT assumes a dry whey yield of 5.6 lbs. per CWT of cheesemilk.

Chart 1: Percent of Wisconsin and Minnesota Dry Whey Production To Total Us Production: 1986 - 1996

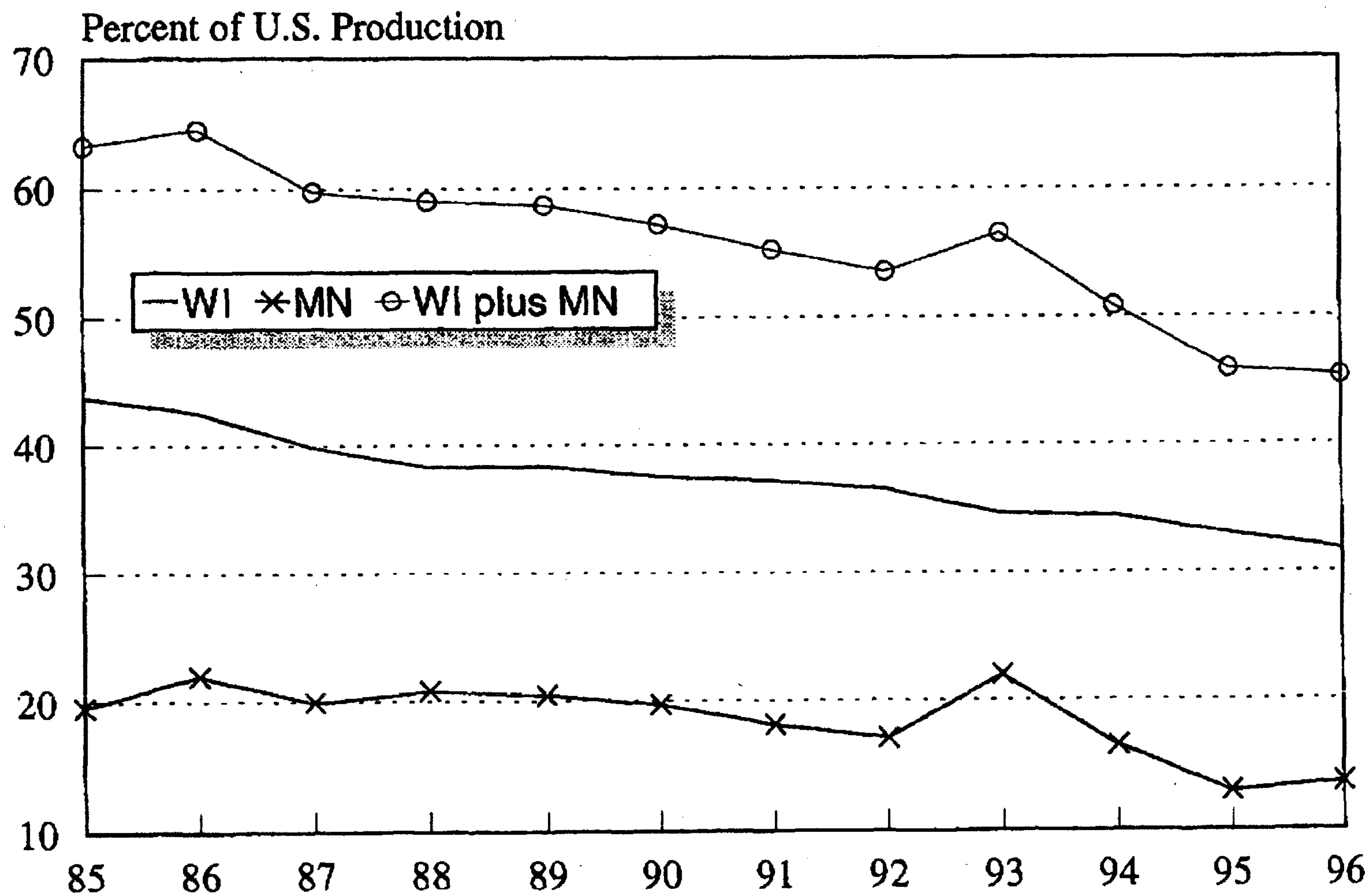
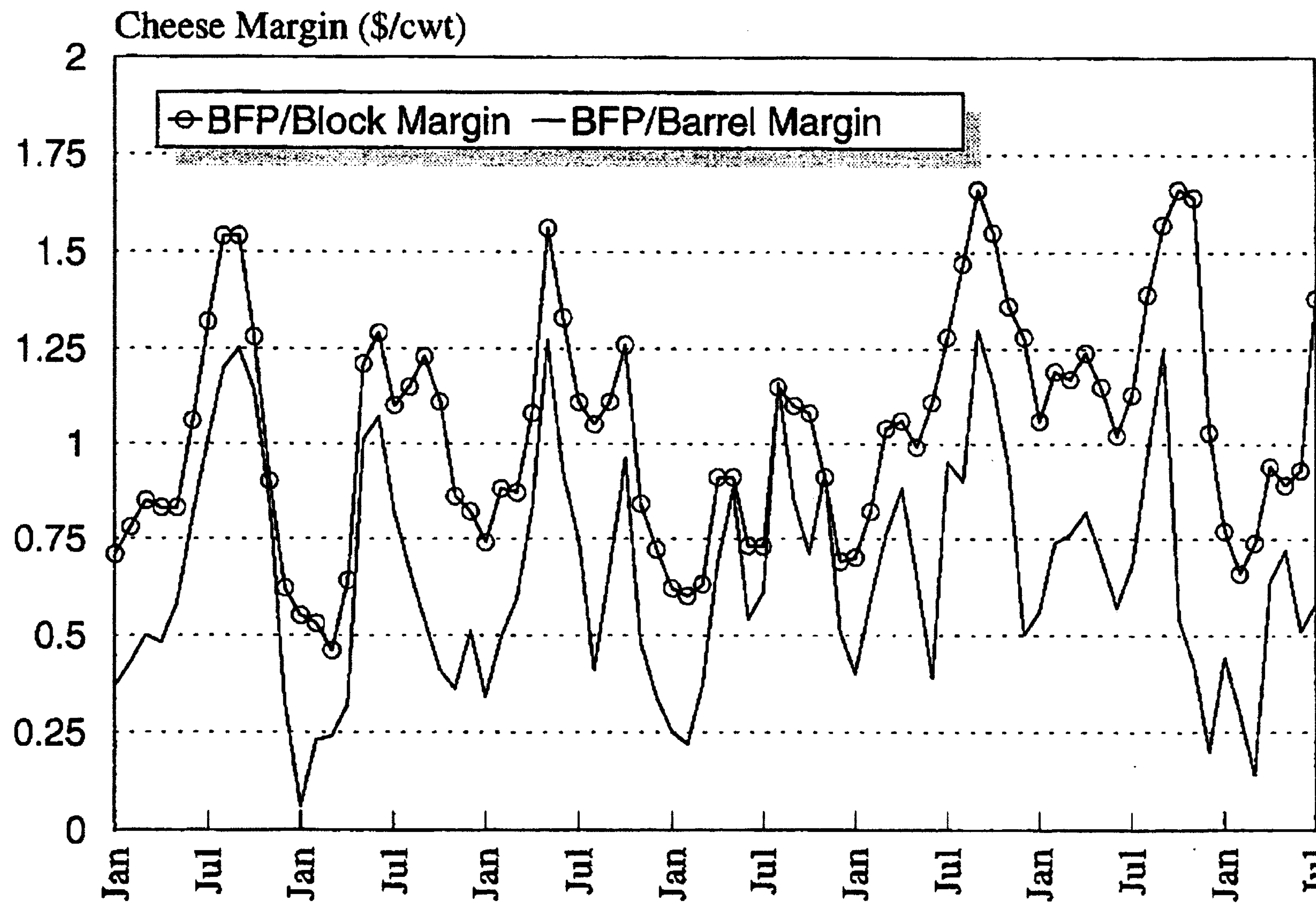


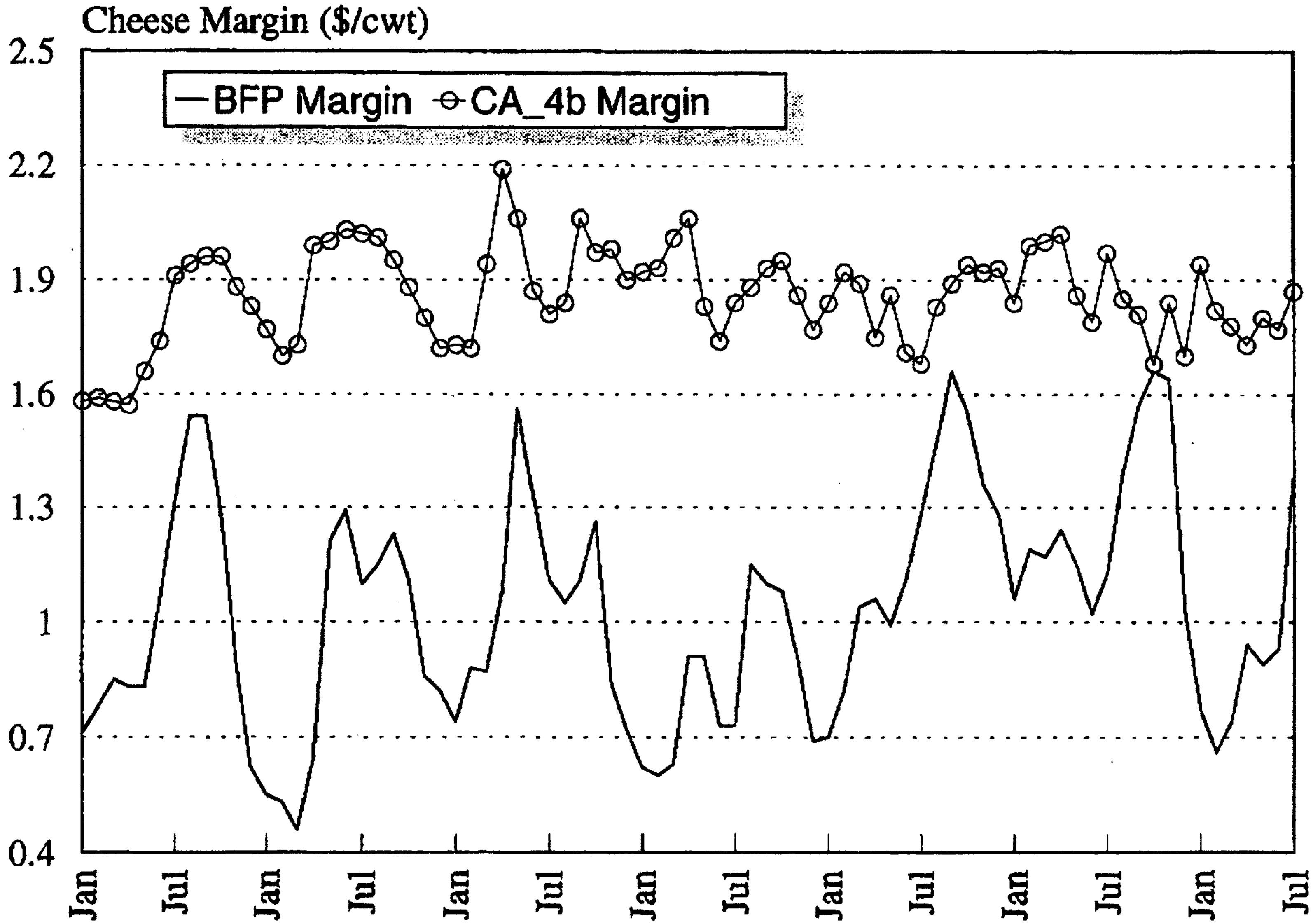
Chart 3: Comparison of Cheese Margins: Block vs. Barrels

Minnesota and Wisconsin (Jan. 1991 - July, 1997)



Note: Assumed 10#/cwt cheese yield and BFP price

Chart 2: Comparison of Cheese Margins Under BFP and 4b
(Jan. 1991 - July 1997)



Note: Assumed 10#/cwt cheese yield and NCE block price