Analysis of Federal Milk Market Order Policy Options

Testimony Presented By:

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Representing

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FAPRI-MU Dairy Model

- FAPRI-MU's dairy model originates from models originally developed by USDA researchers in the 1970s
- My work with the model started during the 1990 farm bill development
- Used extensively as dairy policy in farm bill debates has occurred
- Similar modeling approach to the Congressional Budget Office and USDA
- The model has been used in other areas of dairy research, for example, dairy promotion

FAPRI-MU Dairy Model

- The model is an annual framework
- The model is a mixture of estimated equations and imposed relationships
- State-level development on the supply side
- Demand for dairy products and fluid milk occurs nationally
- The dairy model is always changing as the industry evolves and better modeling approaches are found
- It will always remain a simplification of the complicated dairy industry

FAPRI-MU Dairy Model – Key Elasticities

Estimation Period: 1988-2018

SUPPLY

Endogenous Variable	SR elas.	LR elas.	Production per Cow SR elasticities:					
Milk Cows, Avg., South States			AL	0.03 AR	0.03 FL	0.07 GA	0.05 KY	0.02
- Receipts	0.05	0.43	LA	0.06 MS	0.07 NC	0.03 OK	0.05 SC	0.06
- Expenses	-0.05	-0.51	TN	0.02 TX	0.02 VA	0.03 WV	0.04	
Milk Cows, Avg., Pacific States			AK	0.15 CA	0.02 HI	0.12 OR	0.03 WA	0.02
- Receipts	0.03	0.61						
- Expenses	-0.09	-1.71						
Milk Cows, Avg., Lake States			MI	0.01 MN	0.03 WI	0.03		
- Receipts	0.02	0.37						
- Expenses	-0.01	-0.14						
Milk Cows, Avg., NE States			CT	0.04 DE	0.03 ME	0.05 MD	0.02 MA	0.02
- Receipts	0.03	0.19	NH	0.02 NJ	0.04 NY	0.02 PA	0.02 RI	0.04
- Expenses	-0.04	-0.26	VT	0.02				
Milk Cows, Avg., Mountain States			AZ	0.02 CO	0.02 ID	0.03 MT	0.01 NV	0.03
- Receipts	0.05	0.39	NM	0.02 UT	0.02 WY	0.02		
- Expenses	-0.09	-0.75						
Milk Cows, Avg., Grain States			IL	0.03 IN	0.01 IA	0.03 KS	0.03 MO	0.04
- Receipts	0.06	0.72	NE	0.02 ND	0.04 OH	0.03 SD	0.03	
- Expenses	-0.03	-0.34						

FAPRI-MU Dairy Model – Key Elasticities

DEMAND

Per Capita Consumption Elasticities

	Own Price	Cross Price **	Income
Butter	-0.08		0.48
Nonfat Dry Milk	-0.13		0.38
American Cheese	-0.23	0.23	0.29
Other than American Cheese	-0.22	0.10	0.35
Fluid Milk	-0.12		0.15
Other Milkfat	-0.12		0.43
Other Skim Solids	-0.05*		0.20*

* - Synthetic estimate to maintain consistent model behavior.

** - In the cheese demand specifications, cross price terms are included for the other cheese type modeled.

Dairy Baseline and Scenarios

- The work on federal milk order scenarios was conducted in 2022 under a grant agreement between NMPF and the University of Missouri
- The baseline used was developed with NMPF and industry stakeholders providing input relative to the FAPRI-MU March 2022 baseline
- The five scenarios make initial adjustments in 2023 and these are held throughout the analysis period with no further adjustments even when proposals suggest future adjustments

Deterministic Baseline – The Starting Point

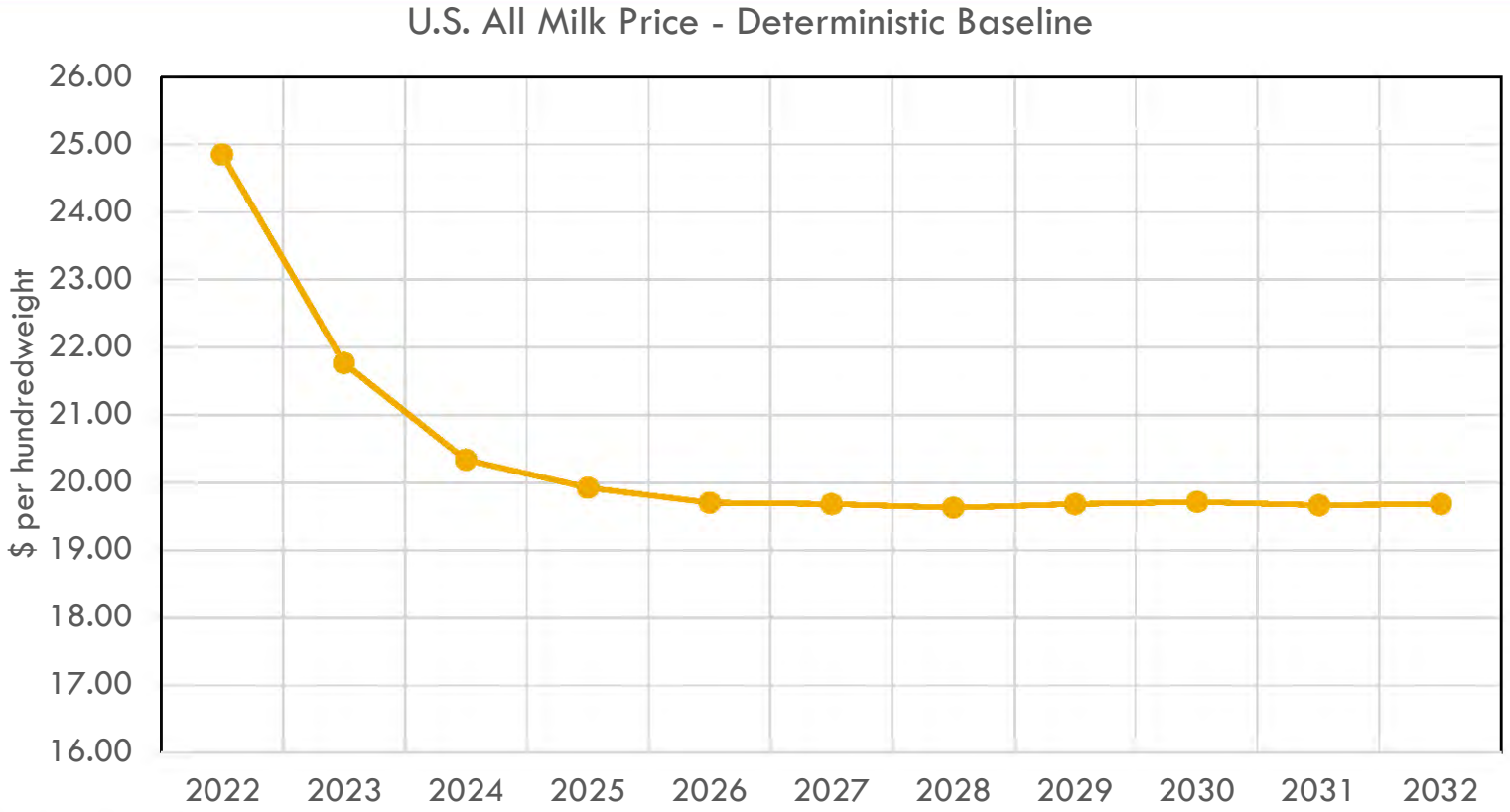

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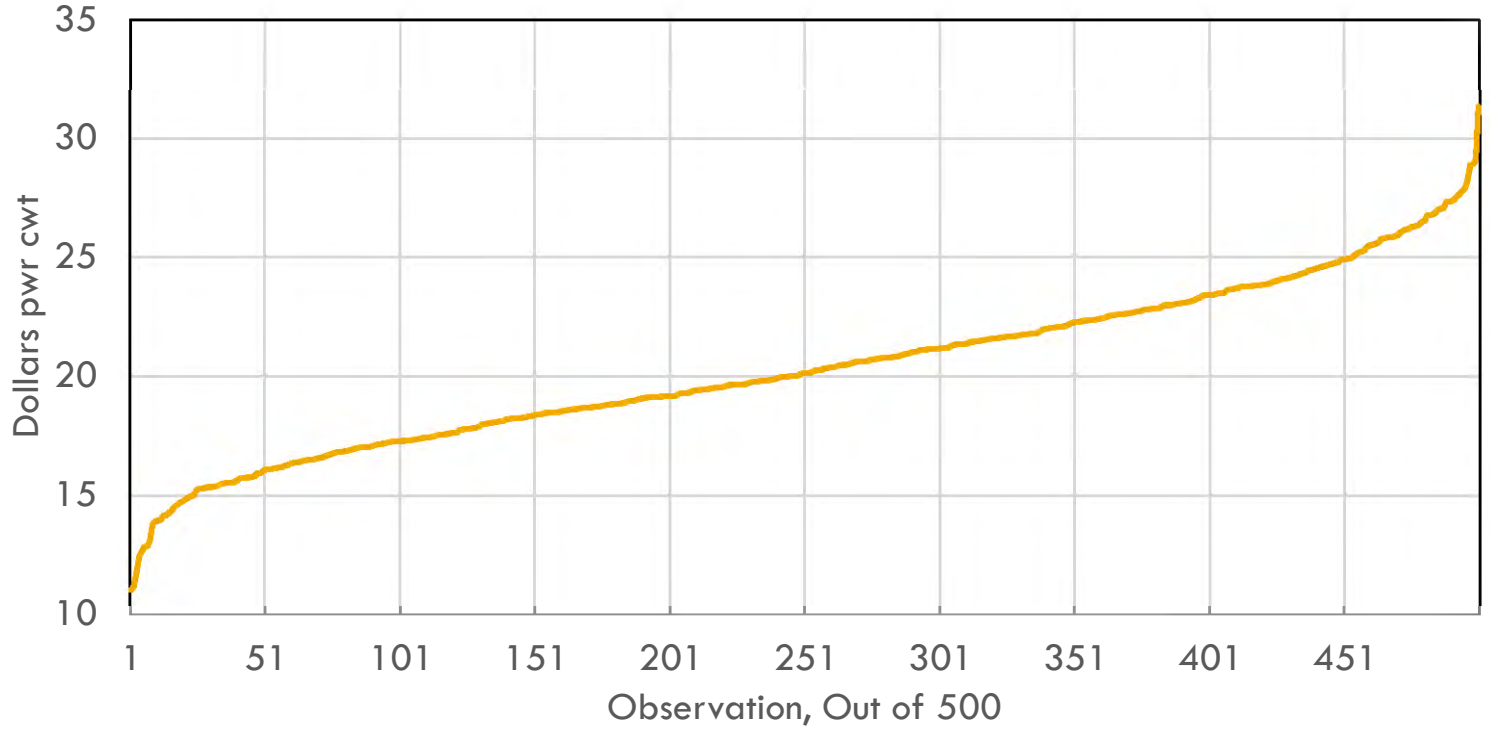
Figure 1. 2024 Stochastic U.S. All Milk Price

Incorporates risks like feed costs, weather, international demand, macroeconomic factors



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NMPF's Proposed Federal Milk Order Changes Analyzed

- 1. Increase the make allowances in the component price formulas for butter, $0.21 per pound; nonfat dry milk, $0.21 per pound; cheese, $0.24 per pound; and dry whey, $0.23 per pound (Proposal 7);
- 2. Discontinue the use of barrel cheese in the protein component price formula (Proposal 3);
- 3. Return to the "higher-of" class I skim milk price mover (Proposal 13);
- 4. Update the milk component factors for protein, other solids and nonfat solids in the Class III and Class IV skim milk price formulas (Proposal 1);
- 5. Update the Class I differential pricing surface throughout the United States (Proposal 19) ;
- 6. All five options listed above together.

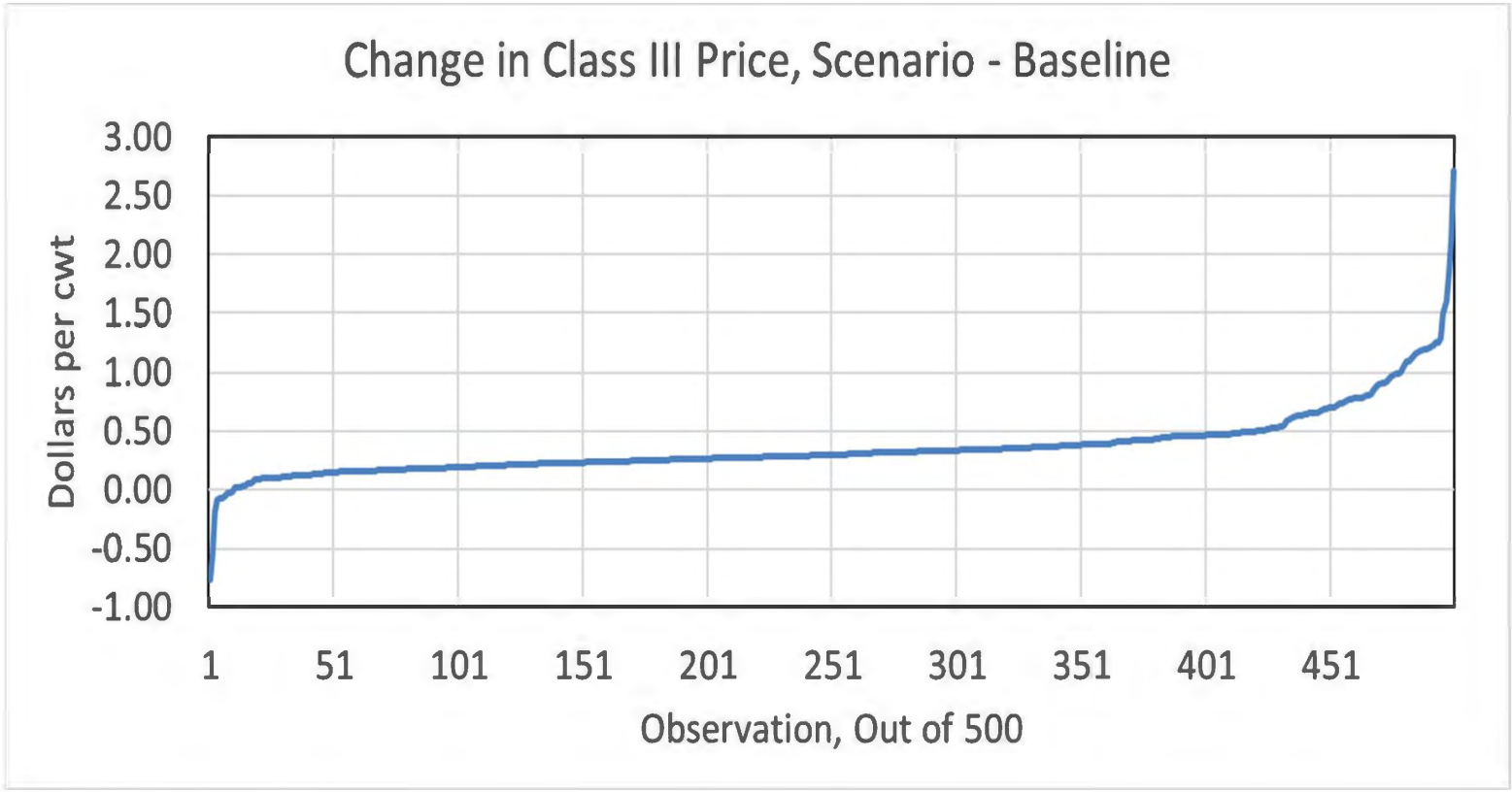
Change in Selected Milk Prices, NMPF Make Allowance Changes (Proposal 7)

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Min. FMMO Class Prices	(Dollars/Cwt.)									
Class I Mover	-0.30	-0.15	-0.09	-0.06	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Class II	-0.27	-0.16	-0.12	-0.11	-0.10	-0.10	-0.10	-0.10	-0.09	-0.09
Class III	-0.33	-0.14	-0.05	-0.02	0.00	0.00	0.00	0.01	0.00	0.00
Class IV	-0.27	-0.16	-0.12	-0.11	-0.10	-0.10	-0.10	-0.10	-0.09	-0.09
All Milk Price	-0.30	-0.15	-0.08	-0.06	-0.05	-0.04	-0.04	-0.04	-0.04	-0.04

Change in Selected Milk Prices, Remove the Barrel Cheese Price from the Protein Component Price Formula (Proposal 3)

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Min. FMMO Class Prices	(Dollars/Cwt.)									
Class I Mover	0.12	0.06	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.01
Class II	-0.12	-0.17	-0.19	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20
Class III	0.37	0.28	0.25	0.23	0.22	0.22	0.22	0.21	0.22	0.22
Class IV	-0.12	-0.17	-0.19	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20
All Milk Price	0.15	0.08	0.05	0.03	0.03	0.02	0.02	0.02	0.02	0.02

Remove Barrel Cheese Price – 2023 Results



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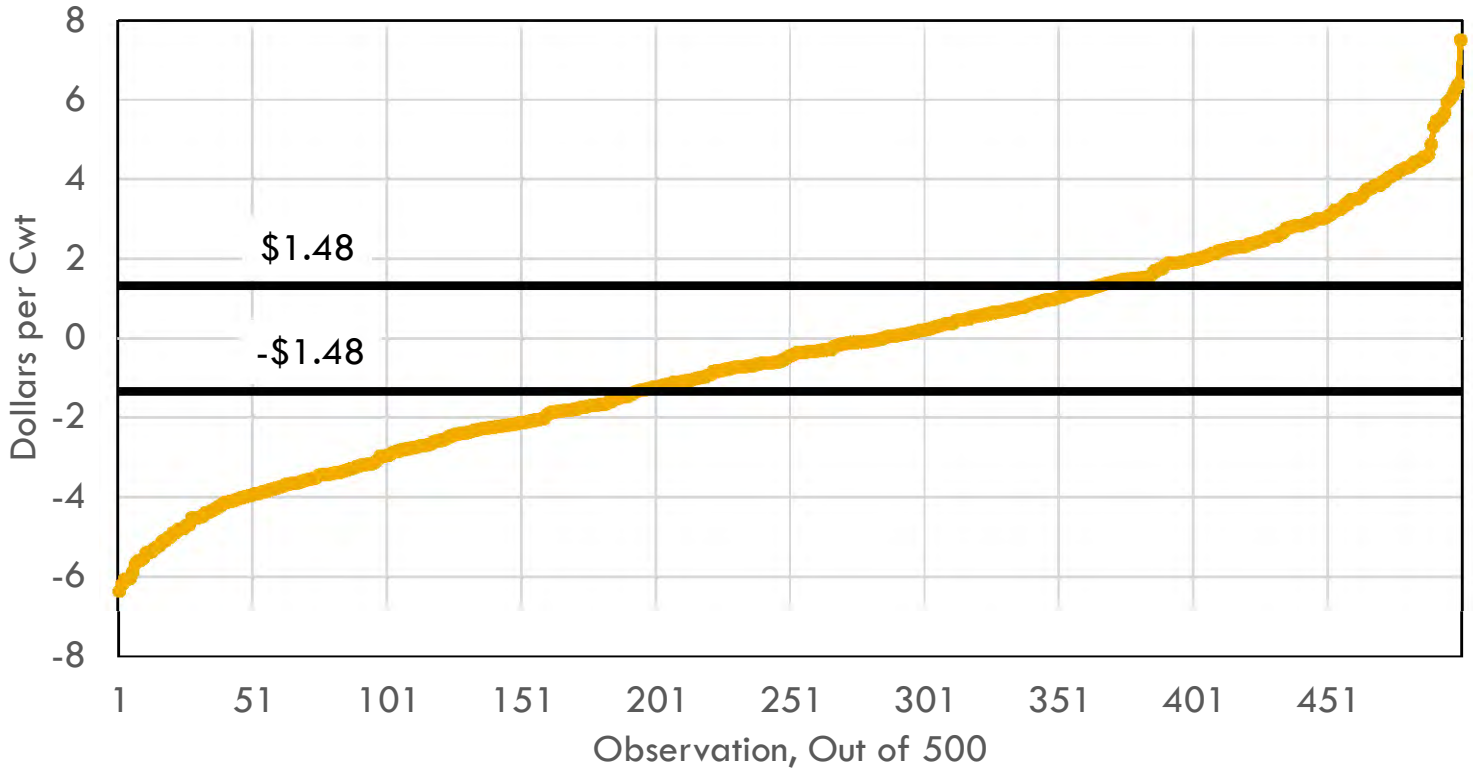
Change in Selected Milk Prices, Return to Higher Of Class I Mover (Proposal 13)

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Min. FMMO Class Prices	(Dollars/Cwt.)									
Class I Mover	0.48	0.32	0.37	0.34	0.39	0.41	0.43	0.49	0.45	0.50
Class II	-0.09	-0.08	-0.09	-0.09	-0.10	-0.10	-0.11	-0.12	-0.11	-0.12
Class III	-0.06	-0.09	-0.10	-0.10	-0.11	-0.11	-0.12	-0.13	-0.13	-0.13
Class IV	-0.09	-0.08	-0.09	-0.09	-0.10	-0.10	-0.11	-0.12	-0.11	-0.12
All Milk Price	0.06	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.02

Class III Minus Class IV Price - 2024



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2023 Class I Mover – Stochastic Analysis
Base – 2018 Farm Bill; Higher Of – Max of (III,IV)

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Change in Selected Milk Prices, Update Skim Solids Components (Proposal 1)

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Min. FMMO Class Prices	(Dollars/Cwt.)									
Class I Mover	0.05	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Class II	0.03	0.01	0.00	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Class III	0.07	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Class IV	0.03	0.01	0.00	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
All Milk Price	0.05	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Change in Selected Milk Prices, Increase Class I Differentials (Proposal 19)

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Min. FMMO Class Prices	(Dollars/Cwt.)									
Class I Mover	-0.22	-0.31	-0.35	-0.36	-0.37	-0.36	-0.36	-0.36	-0.36	-0.36
Class II	-0.25	-0.31	-0.34	-0.34	-0.34	-0.34	-0.34	-0.34	-0.34	-0.33
Class III	-0.20	-0.31	-0.36	-0.38	-0.39	-0.39	-0.39	-0.38	-0.38	-0.38
Class IV	-0.25	-0.31	-0.34	-0.34	-0.34	-0.34	-0.34	-0.34	-0.34	-0.33
All Milk Price	0.17	0.07	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02

Summary of All Scenarios on the U.S. All Milk Price

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
	(Dollars/Cwt.)									
Make Allowance Change	-0.30	-0.15	-0.08	-0.06	-0.05	-0.04	-0.04	-0.04	-0.04	-0.04
Remove Barrel Cheese	0.15	0.08	0.05	0.03	0.03	0.02	0.02	0.02	0.02	0.02
Higher Of, Class I Mover	0.06	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.02
Update Skim Solids	0.05	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Class I Differentials	0.17	0.07	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02
All Scenarios	0.09	0.03	0.03	0.02	0.02	0.03	0.02	0.03	0.02	0.03