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A Descriptive Analysis of Milk Pricing Attribute Values for Cooperative and Independent Milk Handlers in New York State

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Abstract

Dairy cooperatives market 85% of the milk produced by U.S. dairy farmers, although independent handlers remain relevant in many areas. Using handler report data from New York State, we provide a comparative financial analysis of pricing behavior by form of handler organization. Cooperative handlers provided price advantages to producers in terms of higher overall premiums and lower hauling costs; however, the net milk price advantage was only $0.20/cwt (about 1 percent) when all pricing components were considered and suggesting the value of cooperative ownership in dairy marketing includes other nonfinancial performance measures to substantiate such a large market share.

Key Words: Cooperatives, Dairy, Milk Premiums, Milk Pricing, Milk Handlers

Introduction

Cooperative businesses have maintained relevance and even dominance in competitive industries, particularly in agriculture. They are characterized by the consolidation of member-owners who both patronize the firm and express formal

rights to its assets through control rights and the right to the firm's residual earnings (Chaddad and Iliopoulos 2012). The goal of the cooperative is to further the collective economic well-being of its member-owners. The choice of an individual to become a member is dependent on the perceived belief that membership will result in an economically preferable outcome to alternative operational strategies.

Representation and democratic governance principles are strongly relevant within the cooperative organization. Members hold the obligation to exercise continued control over their cooperatives through voting for directors and on other large changes in the business (e.g., mergers). In this manner, members have direct roles in the management and strategic direction of the firm. Through these operational factors, value is provided to members in the form of direct monetary benefits, such as patronage payments and/or favorable pricing structures, and through democratic participation.

Farmer-owned cooperatives hold a sizable and growing market share in milk processing and marketing. According to the 2017 Census of Agriculture, dairy marketing cooperatives handle around 85% of the milk produced in the United States, compared to 1997 when this percentage was over twenty percentage points lower (GAO 2019). Consolidation within the dairy industry has reduced the total number of marketing cooperatives. In 1964, there were 1,244 dairy marketing cooperatives; by 2017, that number had reduced to 118 (GAO

2019). Members of a marketing cooperative benefit through the many marketing services the firm provides, most of which can be more efficiently implemented on a level beyond the capabilities of an individual farm.

Arguably, the relatively large market share of cooperative milk handlers is related to the value dairy farmers ascribe to membership relative to that accruing with independent handlers. Historically, studies have attempted to isolate what benefits of the cooperative business model are of most value. In the case of dairy farmers, Alho (2015) uses heterogeneity in Finnish producer organizational structures to identify membership drivers within contemporary cooperative systems. Using stated preference methods, dairy producers valued a stable channel for selling their products as the most important benefit from membership, whereas community values, decision making participation, and governance authority ranked among the least important (Alho 2015). In the United States, Bravo-Ureta and Lee (1988) and Jensen (1990) similarly found that the dairy farmers accrue the largest benefits of membership in marketing cooperatives to a "guaranteed" market for their milk. Notably, Jensen (1990) found that 70% of dairy producers marketing their milk through independent handlers did so because these handlers paid the highest price.

It is generally the case, and true of all dairy cooperatives currently operating in New York State (NYS), that cooperative milk marketing agreements specify the cooperative will market all of the member's milk. However, how that

milk is priced may vary with existing marketing conditions. For example, current oversupply conditions in the Northeast U.S. have resulted in several cooperatives implementing "base-excess" programs to limit growth in future member milk supply. In this type of program, members are paid the full price for their milk over a base level of production usually defined by some short-horizon historical average; any milk marketed beyond the base is priced lower.

Dairy marketing cooperatives have also assumed expanded operational responsibilities for procurement and distribution of milk in a manner called "balancing." Here, excess supplies of raw milk for handlers processing more perishable products are diverted and sold to handers with facilities to process and store products with longer shelf life (USDA 2001). Historically, independent processors sought to avoid the costly and daunting responsibility of obtaining, coordinating, and managing the milk supply (USDA 2005). Cooperative handlers came to dominate balancing from their commitment to market all member milk and to streamline the coordination of milk supply allocation across markets. Such coordination benefits all dairy farmers and to which members may also ascribe as a value of cooperatives.

Since 2009, farm-level milk prices have fluctuated greatly. Average farm prices in NYS peaked at $27.3 per hundredweight (cwt) in September 2014 and then dropped to $15.8/cwt in May 2016, over a 40% drop in less than two years (USDA 2018). The more recent combination of low prices, reduced demand, and

higher competition for marketing contracts creates financial uncertainty among farmers and, for some, unsustainable net margins. Tactics to hedge against price volatility and to establish and maintain market access are highly relevant to farmers. The structure of many marketing cooperatives is designed to provide some form of these protections.

Access to a secure market through a cooperative provides significant stability for producers of an economically volatile commodity. Gains in market power provide various bargaining-type benefits, especially in contractual business proceedings to receive more competitive prices from retailers based on supply control and brand strength. Representation of member interests can also take place in the form of participation in federal rule-making efforts that influence dairy pricing policies and legal protections.

This paper contributes to the literature on cooperative value with respect to member-level financial returns by investigating differences in pricing practices between cooperative and independent milk handlers. In particular, the paper provides a descriptive analysis of historical milk pricing behavior by milk handlers in NYS. We utilize a unique data set on aggregate milk handler marketing volumes differentiated by handler business structure over an 18-year period. The data also provide the number of farm suppliers by handler type and how raw milk is priced, including premiums and deductions. A closer examination of the similarities and/or differences in producers' milk pricing may

help in understanding the conditions that lead to producers' decisions to leave or join a cooperative. In so doing, a better understanding of differences in pricing may identify benefits accruing to dairy farmers to help substantiate the relatively large market share of farmer-owned cooperative milk handlers.

We continue with an overview of milk pricing practices in the United States and a description of the data collected. We follow with an analysis of premiums and deductions by handlers differentiated by business organization, and conclude with some implications of the empirical results and directions for future research.

Milk Pricing Practices

Since the early 1900's, milk pricing in the United States has evolved in response to economic issues involving the production, distribution, and processing of dairy products. Government and public policy have played an integral role in the establishment of and changes in how milk is priced and organized regionally. Federal- and state-level marketing orders (MOs) play a fundamental role in the orderly sale and movement of milk between producers and consumers. MOs accomplish this by setting minimum raw, fluid-grade milk prices that handlers must pay to dairy farmers. Handlers can, and often do, purchase milk for higher than the minimum set price if economic conditions are conducive (NFBF 2019).

Minimum prices are set for several classes of milk defined by the final product or intended use of the milk. The price producers receive is a blend price or weighted average of class prices based on regional utilization of milk in each market. MOs pool the value of milk in their region such that producers within the order receive a uniform price for their milk regardless of the end use. MO prices are calculated and specific to predetermined geographic areas where specific handler competition is isolated (Jesse and Cropp 2008).

Most MOs (including those within NYS) use multiple component pricing in their pooling calculations. Here, MOs value contributions to the pool based on handler utilization of distinct milk components: butterfat, protein, and other solids, and occasionally non-fat solids. Producer value is calculated using the United States Department of Agriculture, Agricultural Marketing Service (USDA-AMS) announced component prices within the pool plus any Class I and II producer price differentials (PPD). The difference between the component value and handler value divided by the total number of pounds in the pool establishes the level of the PPD. Combined, component values and PPD represent the minimum base price producers can receive from handlers.

Existing legislation provides cooperatives the ability to be more flexible in retuning the announced blend price to their members. In particular, since cooperative handlers are owned by their farmer-suppliers, they are permitted to pay their members (i.e., themselves) less than stated minimum prices.

Cooperatives may also re-blend milk receipts across MOs in which they operate (Jesse and Johnson 1985).

Milk checks received by farmers vary from the base MO values based on various pricing premiums and cost deductions imposed by their handlers. Quality premiums are often offered by handlers to reward or penalize producers for the quantity of somatic cells and/or bacteria present in milk. High somatic cell count (SCC) is linked to increased white blood cell production in a cow used to fight off potentially harmful pathogens such as mastitis and are undesirable due to their impact on the overall quality and yield of dairy products (Ruegg 2011). Quality premiums provide producers a method to increase profits on their farms with price advantages to increasingly reward producers who reach the strictest levels. Farmers choose to invest in equipment or livestock management improvements to reduce the presence of unwanted microbes if they believe the investment will provide net positive returns.

Volume premiums are another common form of price incentive offered to milk producers. Though less common in current over supply conditions, handlers historically offered volume premiums to incentivize larger milk outputs per farm to capture economies of scale. Generally, daily or monthly milk shipment brackets are set with associated per cwt payments. Other premiums exist such as on protein levels, marketing or competitive premiums, and premiums for organic, kosher production, and/or recombinant bovine somatotropin-free (rBST-free)

milk. How these premiums are defined, set, and reported varies from handler to handler. In the case of cooperatives, patronage refunds may also be included in a producer's milk check.

Like premiums, milk price deductions are diverse in number and definition depending on the characteristics of the individual handler. Hauling charges make up the largest proportion of deductions and account for all associated costs with delivery and movement of milk (e.g., fuel, trucks, maintenance, and drivers). Some handlers own their own trucking fleet, while others contract independent trucking businesses. Regardless, handlers may choose to charge flat rate hauling charges across their supplier base or an altered system based on farm or region specific factors such as location and farm size. Other deductions commonly include dues, milk promotion, co-op equity payments, Commodity Credit Corporation (CCC) assessments, and MO services.

Handler Data

NYS handler data, by year and handler type, were collected for calendar years 2000 through 2017 from the NYS Department of Agriculture and Markets (NYAM) Division of Milk Control and Dairy Services. NYAM collects milk pricing data from required monthly Payment Report filings (Schedule G) by milk handlers operating in the state (Figure 1). NYAM uses the data to inform their work, including reporting on market conditions (NYAM 2018). The data are

aggregated to the handler type level (i.e., cooperative or independent). Individual handler data were not available.

Line items are filled out at the discretion of handlers with little definition provided by the state. Accordingly, it is likely that procedural methods in how handlers report values vary. However, it is expected that individual handlers will report information in a consistent manner over time, providing some stability to data collected. It is NYAM's policy to take handlers at their word as long as they report all payments and deductions made to farmers.

Line item G0006 (PPD) is reported by handlers in a method different from what is defined by MOs (Figure 1). Handlers are aware of component pricing values (G0041, G0045, and G0005) based on MO values. They are also aware of how much they paid producers in gross value excluding premiums (G0007). Therefore, most handlers subtract component values from G0007 to get their cumulative PPD value paid to all farmers. G0925 (rBST free) and G0930 (Other) are catch-all categories for premiums that do not fall under other categories (i.e., G0095, G0010, G0015, and G0020). Over the last few years, NYAM has attempted to focus G0930 (Other) on premiums paid for organic/kosher milk and shifted G0925 to rBST free premiums.[a]

The competitive premium (G0920) also has a loose definition but generally refers to any premium provided to producers as an incentive to continue to sell to a specific handler; i.e., to make a handler's pricing more "competitive".

These premiums are often referred to under the alternate title of "marketing" premiums. Competitive premiums can be considered benefits to suppliers for their continued loyalty. Patronage refunds are not considered a form of competitive premium. The complexity and sheer number of premium types across handlers provides a unique challenge to understanding their structure and implications to producer interests.

Line item G0010 (cooperative cash dividends paid this month) represents patronage; i.e., payments made to cooperative members given an association decides to distribute a proportion of their annual profits. Historically, NYAM had handlers report monthly equivalents of this value. In recent years, NYAM ceased collection of monthly cash dividend statistics and instead collects data on the annual check (known as the 13th check) paid to farmers. A cooperative's decision to distribute patronage refunds is a distinguishing factor from independent handlers.

Empirical Results

Between 2000 and 2017, an average of 76% of NYS producers were identified as a member of a dairy cooperative; the balance sold milk to independent handlers. As shown in Figure 2, the proportion of cooperative to non-cooperative producers has remained relatively stable, with the cooperative proportion increasing by an average of 0.3% annually. Similarly, an average of 82% of the milk in NYS was produced by cooperative members, implying, at

least on average, that the size of farms that sell to cooperatives are only slightly larger than those selling to independents (Figure 3). Similar to farm counts, the volume of milk marketed by cooperative members increased by an average of 0.4% annually over the 18-year period, both matching industry norms.

For the time period evaluated, an average of 186 dairy producers each year left the industry or exited the state. Though the total number of producers has decreased, some of the changes in suppliers are a result of producers joining or leaving the opposite group. As evidenced in Figure 4, each increase or decrease in non-cooperative producers is matched with a relatively equal but opposite effect in cooperative producers. The overall net change in total farm suppliers is still negative.

Table 1 provides a detailed look at the average composition of farm milk prices in NYS from 2000 through 2017, differentiated by handler type. Means-difference tests are used to compare whether the computed means are statistically different from one another. In particular, the null hypothesis is that the difference between the two means is zero, where the *p* value represents the probability of obtaining the observed difference if the null hypothesis were true.

Marketing Order Pricing

Total order values to farm price (i.e., components + PPD) differ by nearly $0.30/cwt across handler types, but whose means are statistically indifferent on their own (Table 1). The statistical result is not surprising given the large variation

in milk prices over the period of study, with an average difference less than two percent of mean order values. Conceptually, the result is expected since these values are established by MOs, not handlers. NYS contains one federal MO (eastern part of the state) and one state MO (western part of the state). The component values by year were similar across handler types but not identical (i.e., average values of $15.623 and $15.647 for cooperative and independent handlers, respectively), suggesting farm supplier locations by MO likely vary only modestly by handler type. The difference is not statistically different from zero (*p* value = 0.982).

PPDs are also set by MOs after all the details of milk receipts and utilization have been reported. However, as discussed above, handlers tend to compute their PPD as a residual term for NYAM payment reporting purposes. Non-cooperative handlers reported an average annual PPD $0.267/cwt higher than that for cooperative handlers; i.e., $1.268 versus $1.001 (Table 1). While a relatively large difference, substantial variation around the mean estimates for both handler types over time implies that their difference is not statistically significant; coefficients of variation (CV) exceeded 47% for both handler types. Even so, annual PPD values for independent handlers were consistently above those for cooperative handlers for each year of the sample. As such, it is likely that the representation of farm suppliers by location and handler type differ by more than indicated by the difference in component values. Indeed, one relatively

large dairy cooperative in the state operates in western NYS that is regulated under the state MO. Why component values are more similar across handler types is likely due to USDA established component prices that vary less regionally, particularly for two MOs used adjacent to one another. For our purposes, the order values are necessarily included for accurate accounting, but not contributory to the evaluation of differences in pricing decisions under handler control.

Milk Premiums

Average handler premiums by type are shown in the next section of Table 1. In addition, Figure 5 illustrates total premiums paid to producers by cooperative and non-cooperative handlers annually from 2000 through 2017. On average, non-cooperative handlers paid $0.573/cwt while cooperatives paid $0.761/cwt in total premiums, a difference ($0.188/cwt) that is highly significant (Table 1). Importantly, these levels do not include patronage refunds.

Interestingly, non-cooperative handlers had lower CVs for five of the six premium categories (all but protein), as well as in aggregate (i.e., 24.8% versus 37.8%). The results imply that farmers selling to independent handlers experienced lower variability in premium payments year-over-year when compared to cooperatives. The largest relative gains for cooperative premiums were for competitive (+0.099), other/organic/kosher (+0.050), volume (+0.045), all statistically different at the 95% significance level or less. The only category

where independent handlers had a statistically larger mean was for protein (+0.014), but even there represented less than 4% of total premiums.

Quality premiums made up the largest percentage for non-cooperative handlers (37%) while competitive premiums made up the largest percentage for cooperatives (29%), followed closely by volume (28%) and quality (27%). Higher volume premiums for cooperative handlers do not necessarily imply larger farm suppliers (on average) since the difference may also include differences in premium prices for volume thresholds. Indeed, related research involving milk handler interviews in NYS revealed substantial variations in both volume thresholds and premium prices for meeting them (Munch, Schmit, and Severson 2020).

The higher proportion of competitive premiums offered by cooperative handlers may relate to offering enhanced benefits to member-owners. The user-oriented governance structure may lend itself to increasing payments to producer members who remain loyal to the cooperative. However, in related research, comments received from dairy producers that marketed their milk through a cooperative (and served on the cooperative's Board of Directors) indicated that that such a premium was not offered, or it was deemed unnecessary (Munch, Schmit, and Severson 2020).

It is useful to consider whether handlers alter their premium structures according to changes in market conditions. A crude, but effective, way to consider

this is in the comparison of premium structures during high and low price years.[b] As shown in Figure 6, both types of handlers gave higher premiums during high price years, but the differential varied considerably. Specifically, non-cooperative handlers increased average total premiums in high price years by only $0.03/cwt while cooperative handlers paid an additional $0.18/cwt relative to low price years. As high-price years are generally coincidental with higher relative demand, the primary component of increase for cooperative handlers through volume premium payments makes sense. This suggests cooperatives may be quicker to respond to higher (lower) demand years through raising (reducing) premiums beyond that reflected in MO minimum price changes and, perhaps, influenced by differences in operational and governance policies between the two groups.

Considering these recent trends, and assuming that demographic characteristics of the farm suppliers are similar, cooperative handlers in NYS tend to provide more monetary value to producers through premiums than non-cooperatives. Paying higher premiums may be a relevant incentive for producers to join cooperative associations and pricing behavior within specific categories could appeal differently to farmers with varying production characteristics.

Patronage Dividends

Over the 18-year period, over $223 million of patronage refunds were paid to NYS dairy producers as part of their cooperative memberships. Across all cooperative handlers, patronage refunds ranged from less than $0.01/cwt in 2003

to $0.48/cwt in 2009, and averaged $0.12/cwt (Table 1). Combining order values, premium payments, and patronage refunds (for cooperatives) results in a gross value of milk (line item G011 on the Payment Report). Gross values are nearly identical across handler types at around $17.5/cwt and are not statistically different from one another - not a surprising result as order values make up around 95% of total gross value for both groups. At least at an aggregate value, gross incomes to dairy farm suppliers are indistinguishable across handler types, on average, and an intuitively appealing result to the argument of relatively competitive markets between handlers.

Deductions

To calculate the net value of dairy farmer's milk, handlers include marketing cost deductions on their Payment Reports. Seven different marketing expense categories are included. The bottom section of Table 1 summarizes the individual and aggregate deduction values by handler type, while total deductions levied by year are illustrated in Figure 7. Cooperative handlers averaged $0.762/cwt in deductions, while independents averaged $0.948 – a difference that is statistically significant. However, the gap in total deductions has narrowed considerably over the time period evaluated, albeit not due to reductions in hauling costs which make up the largest share (i.e., over 70%). The corollary to Figure 6 (average premium components during high and low price years) on

deductions levied reveals little differences in costs levied, an expected result as expressed on a per cwt basis.

But for "other deductions" and "milk promotion" assessments, mean differences across all categories are statistically significant. Milk promotion costs are outside of handler discretion in that they are based on mandatory federal and state check off assessments. Dues and equity payments are primarily specific to cooperative enterprises. The fact that average Federal MO services are higher for non-cooperative handlers is further evidence that more independent handlers operate in the Federal MO in the state. Commodity Credit Corporation (CCC) assessments are farm specific.

Accordingly and as expected, the difference in total deductions across handler types is largely explained by higher hauling costs charged by non-cooperative handlers ($0.736 versus $0.526). While some anecdotal evidence suggests that cooperative handlers "subsidize" the cost of hauling for their members, if true, this would simply result in a reduction in patronage refunds received, such that the full cost of hauling is still reflected in the net value of milk to members, albeit with possible distributional implications. A lower level of deductions (on average) for cooperative handlers suggests that cooperatives may hold an advantage in minimizing marketing expenses for their members over independent handlers. To the degree that cooperative members are more

geographically proximate to each other and to processing facilities (relative to those for independent handlers), lower hauling costs per cwt would result.

Subtracting total deductions from the gross value of milk is defined as the net value of dairy farmer's milk, inclusive of patronage (i.e., line item G0018 of the Payment Report) Cooperatives had an average net value of $16.742/cwt compared to $16.540 for independents, a difference not statistically different from zero (Table 1). Indeed, as shown in Figure 8, years for which differences are largest correspond to relatively stronger market years and reflect higher than average patronage refund payments.

Discussion and Conclusions

Dairy producers make conscious decisions on their cooperative association membership status. The innate need for these decisions suggests that advantages offered by cooperative business organizations and independent handlers have varied over time. Handler payment reports over the last 18 years suggest that cooperative and independent handler average net farm milk prices are not statistically different from one another, a result due to MO prices that dominate the composition of the final milk check to producers and a highly competitive market. However, several premiums paid and deductions levied, which are within the handler's control, are different across handler type and in aggregate.

Cooperative handlers, on average, provide larger price advantages to producers when considering premium structures. Furthermore, in years where

cooperatives paid substantially higher total premiums, the rate of loss of cooperative producers shrunk while the rate of loss in non-cooperative members increased. It is conceivable that during these years, producers shifted to cooperative handlers to take advantage of higher premiums.

Handler pricing data also revealed that non-cooperative handlers had lower premium level variation over time. Cooperative organizations, by nature, must balance the financial needs of their members with the financials needs of the organization itself (i.e., balancing cooperative-level and member-level returns). Therefore, a cooperative association may be more reactive to market changes by more quickly passing on advantageous pricing changes to their members. Cooperatives generally agree to accept and market all milk produced by members without limitation. However, this practice also implies that premiums, like volume premiums, may change more frequently depending on member production changes, market demand, and the fiscal strength of the organization. Such evidence would seem to currently exist based on growing implementation of base-excess programs by cooperative milk handlers. Independent handlers may be more restricted in their operational strategy resulting in less variable premium payments over time.

Patronage refunds provide an additional price advantage for cooperative members based on the downstream success of cooperative activity post farm gate, albeit they are not guaranteed and, in some years, they could be negative. That said, an added monetary benefit of $0.12/cwt, on average, was found during the time-

period evaluated. Deductions were also lower, on average, for cooperative handlers, primarily due to lower hauling costs levied to member suppliers. Since cooperatives are often formed explicitly to provide marketing efficiencies for a group of dairy farmers through pooled resources, lower marketing costs may be a natural result of the organizational model. However, deduction rates remained relatively stable from 2000 through 2017 for both cooperative and non-cooperatives implying producers are likely not basing member status decisions on these costs.

Premium (higher) and deduction (lower) advantages of cooperative handlers may contribute to an already proportionally high number and growing percentage of NYS dairy farmers that are members of cooperatives. However, the extent that farmers individually forecast deduction and premium rates in making handler decisions is unknown. Whether a producer has the resources to accurately predict future trends in these pricing components would impact the rate at which this information would be used in determining member status. The small differences in premiums and deductions relative to MO values and inertia effects will also likely influence producers moving to different handlers.

Since year-over-year MO price fluctuations are far larger than those reflected in premium, patronage, and deductions, it is likely that producers may also evaluate other structural qualities offered by handlers beyond pricing features when deciding on cooperative membership status. It is known that farmers prefer cooperative business structures for perceived market access and efficiency gains

and the obligation to purchase all milk produced. However, other factors like democratic governance, voting for the board of directors, and voice to the direction of an association should be considered. Nonetheless, the data presented here provide an objective perspective on pricing factors that influence the bottom line of a producer's milk check.

Considering the use of NYS handler payment data in this analysis, the extent to which the implications can be applied in a national context are limited. Without analysis of other data, it is unclear whether these pricing structures and trends are unique to NYS or not, albeit some handlers in NYS have multi-state or national footprints. Additionally, the analysis performed was based on aggregated cooperative and non-cooperative handler data. Comparative breakdowns based on, for example, handler size could not be completed.

Presumably milk pricing structures employed by cooperative handlers reflect the interests of their member owners. Measurement of the value of cooperative membership relative to the importance of pricing attributes would positively supplement our understanding of producer level preferences towards milk handler selection. However, heterogeneity in member interests and transactionary participation increases the costs associated with collective decision making, which blurs the lines of defined property rights. A reduction in the confidence of an organization to effectively represent owners' interests limits

property right advantages and delegitimizes the collective value of the governance model (Chaddad and Iliopoulos 2012).

Discrete choice methods are commonly utilized to reveal individual level preferences towards attributes of products, services, and contracts and would serve as an appropriate econometric method to observe these preferences. To our knowledge, only Roe, Sporleder, & Belleville (2004) estimate the monetary value of cooperative ownership by estimating producer preferences for contract attributes within the U.S. hog industry. Improving on this approach with application to the dairy industry is a top priority for our continuing research (Munch, Schmit, and Severson 2020).

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DIS 423 PR (1/07)

STATE OF NEW YORK
DEPARTMENT OF AGRICULTURE & MARKETS
DIVISION OF DAIRY INDUSTRY SERVICES
I0B AIRLINE DRIVE, ALBANY, NY 12235

PAYMENT REPORT

For Month of:

This report properly prepared and signed must be submitted to the above address not later than the 28th day following the month to which the report applies.

If you have any questions, please call (518) 457-3169.

SCHEDULE G - ALL PAYMENTS MADE DIRECTLY TO NEW YORK DAIRY FARMERS THIS MONTH

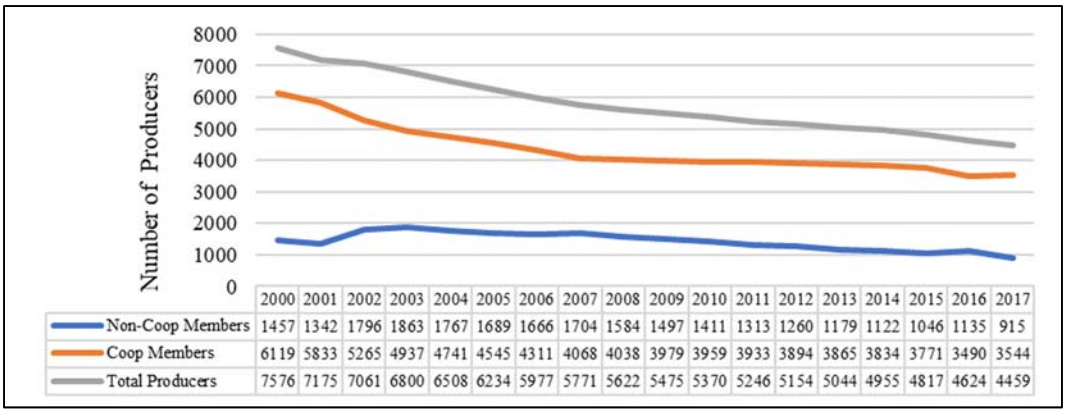
Line	For Milk Receipts Reported in Line 9998, Schedule A of Your Plant Report Form DIS 423 or Schedule R of Your BTU Report		
G0002	Number of New York Dairy Farmers		
G0003	Pounds of Milk		
G0004	Butterfat Test .	Protein Test .	Other Solids Test .
G0041	Pounds of Butterfat	Butterfat Price $	Butterfat Value $
G0045	Pounds of Protein	Protein Price $	Protein Value $
G0005	Pounds of Other Solids	Other Solids Price $	Other Solids Value $
G0006	Total Producer Price Differential Value		$
G0007	Total Gross Value of Milk (Exclusive of Special Premiums)		$
G0008	Average price (Exclusive of Special Premiums) (Line 0007 divided by Line 0003 then multiplied by 100)		$.
G0009	Special Premiums Paid This Month:	(Total G0905 through G0930)	$.
	G0905 Volume $	G0920 Competitive $	
	G0910 Protein $	G0925 **RBST FREE** $	
	G0915 Quality $	G0930 Other $	Identify:
G0010	Cooperative Associations Report Cash Dividends Paid This Month.		$.
G1010	Adjustment for Cooperative Forward Contract Agreement		$
G0011	Gross Value of Milk(INCLUDING SPECIAL PREMIUMS & COOP. DIVIDENDS)		$.
	Deductions from Gross Value: POUNDS	(If different from line 3)	AMOUNT
G0012	Hauling (Include stop charges)		$.
G0013	Coop. dues		$.
G0014	Milk Promotion (Both N.D.B. & Local)		$.
G0015	Coop. Equity Payments		$.
G1505	C.C.C. Assessment		$.
G1510	Federal Order Marketing Services		$.
G0016	Other (Identify)		$.
	NOTE: Do not include advance payments, 3rd party assignments, insurance, supplies, loans & similar items.		
G0017	Total Deductions		$.
G0018	Net Value of Dairy Farmers Milk (Line G0011 minus Line G0017)		$.

I hereby certify that the information in this report is correct to the best of my knowledge.

Signature of Person Preparing Report: Title: Date:

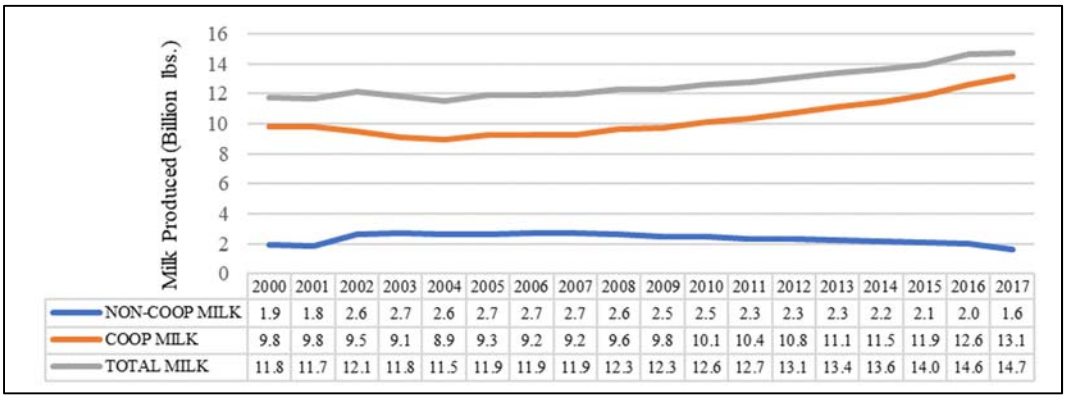
PLEASE PRINT NAME OF PERSON TO CONTACT ABOUT THIS REPORT Phone No:

Figure 1. Schedule G payment report (NYAM 2018).



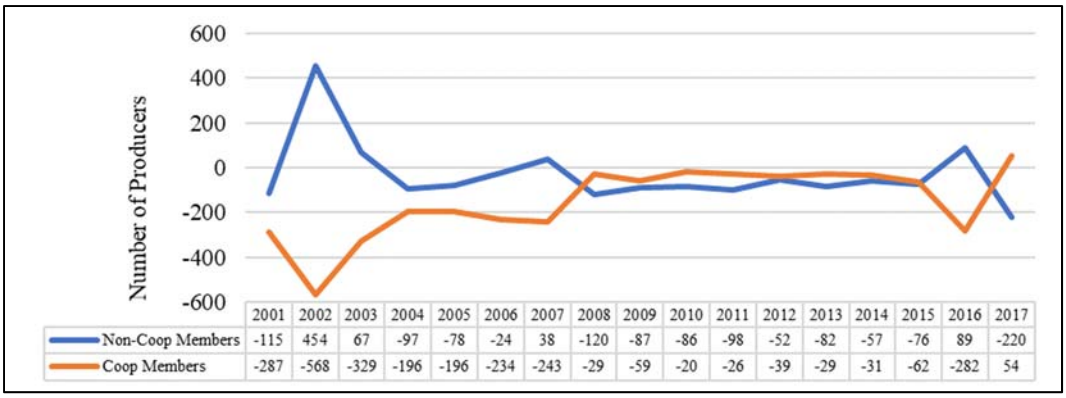
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Non-Coop Members	1457	1342	1796	1863	1767	1689	1666	1704	1584	1497	1411	1313	1260	1179	1122	1046	1135	915
Coop Members	6119	5833	5265	4937	4741	4545	4311	4068	4038	3979	3959	3933	3894	3865	3834	3771	3490	3544
Total Producers	7576	7175	7061	6800	6508	6234	5977	5771	5622	5475	5370	5246	5154	5044	4955	4817	4624	4459

Figure 2. Number of New York dairy producers by handler type (NYAM 2018)



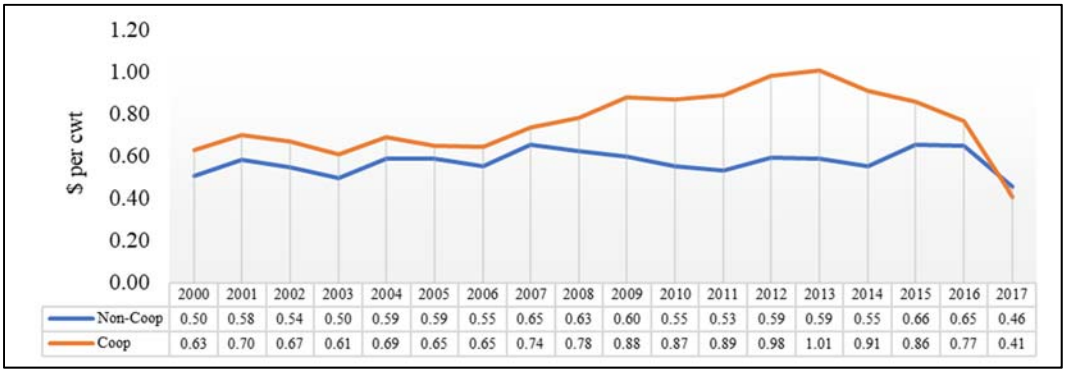
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NON-COOP MILK	1.9	1.8	2.6	2.7	2.6	2.7	2.7	2.7	2.6	2.5	2.5	2.3	2.3	2.3	2.2	2.1	2.0	1.6
COOP MILK	9.8	9.8	9.5	9.1	8.9	9.3	9.2	9.2	9.6	9.8	10.1	10.4	10.8	11.1	11.5	11.9	12.6	13.1
TOTAL MILK	11.8	11.7	12.1	11.8	11.5	11.9	11.9	11.9	12.3	12.3	12.6	12.7	13.1	13.4	13.6	14.0	14.6	14.7

Figure 3. New York State milk production by handler type (NYAM 2018)



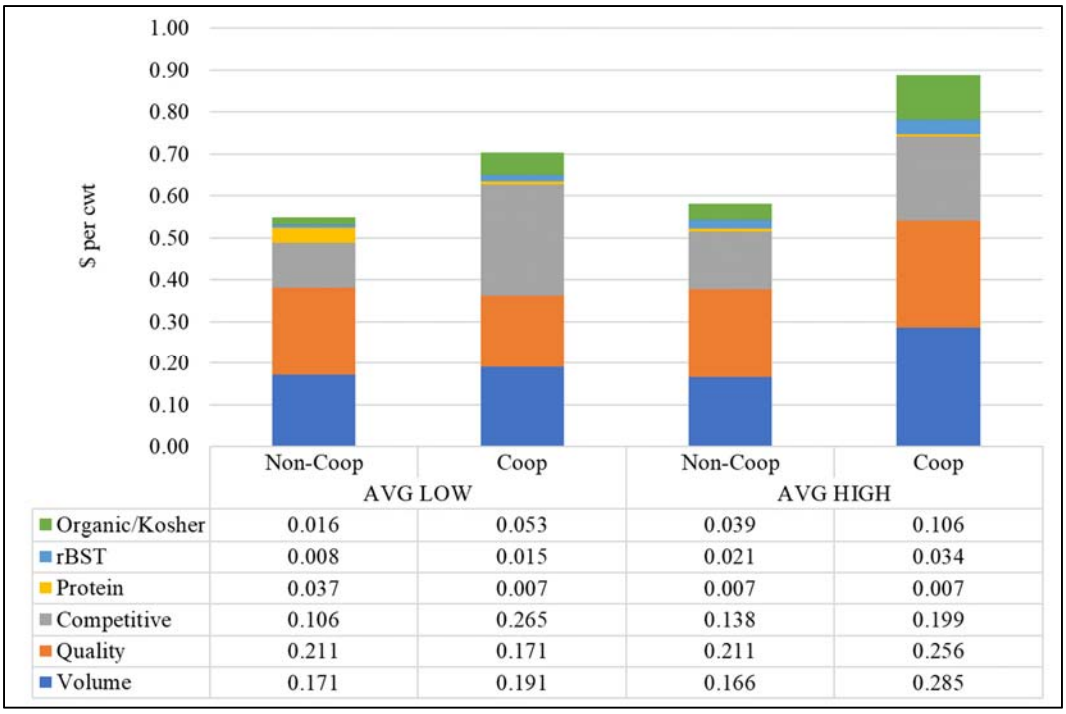
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Non-Coop Members	-115	454	67	-97	-78	-24	38	-120	-87	-86	-98	-52	-82	-57	-76	89	-220
Coop Members	-287	-568	-329	-196	-196	-234	-243	-29	-59	-20	-26	-39	-29	-31	-62	-282	54

Figure 4. Annual difference in number of producers by handler type (NYAM 2018)



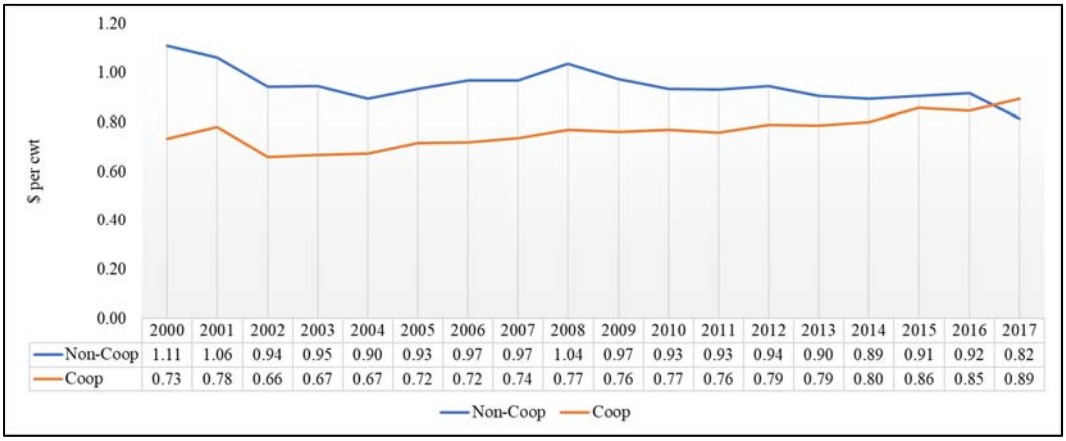
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Non-Coop	0.50	0.58	0.54	0.50	0.59	0.59	0.55	0.65	0.63	0.60	0.55	0.53	0.59	0.59	0.55	0.66	0.65	0.46
Coop	0.63	0.70	0.67	0.61	0.69	0.65	0.65	0.74	0.78	0.88	0.87	0.89	0.98	1.01	0.91	0.86	0.77	0.41

Figure 5. Total premiums paid by handler type (NYAM 2018)



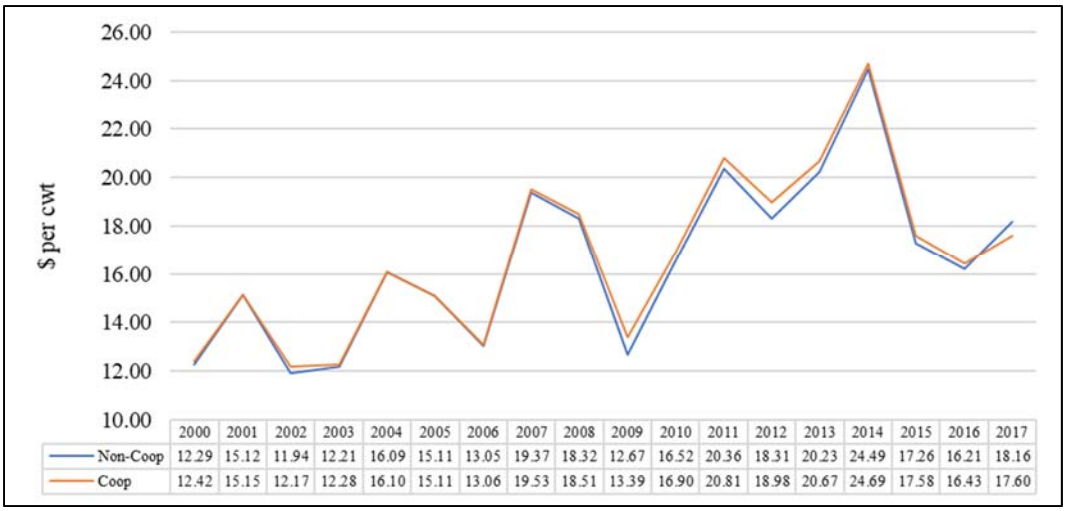
	Non-Coop	Coop	Non-Coop	Coop
	AVG LOW		AVG HIGH	
Organic/Kosher	0.016	0.053	0.039	0.106
rBST	0.008	0.015	0.021	0.034
Protein	0.037	0.007	0.007	0.007
Competitive	0.106	0.265	0.138	0.199
Quality	0.211	0.171	0.211	0.256
Volume	0.171	0.191	0.166	0.285

Figure 6. Average premium composition, high versus low price years, by handler type (NYAM 2018)



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Non-Coop	1.11	1.06	0.94	0.95	0.90	0.93	0.97	0.97	1.04	0.97	0.93	0.93	0.94	0.90	0.89	0.91	0.92	0.82
Coop	0.73	0.78	0.66	0.67	0.67	0.72	0.72	0.74	0.77	0.76	0.77	0.76	0.79	0.79	0.80	0.86	0.85	0.89

Figure 7. Total deductions levied by handler type (NYAM 2018)



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Non-Coop	12.29	15.12	11.94	12.21	16.09	15.11	13.05	19.37	18.32	12.67	16.52	20.36	18.31	20.23	24.49	17.26	16.21	18.16
Coop	12.42	15.15	12.17	12.28	16.10	15.11	13.06	19.53	18.51	13.39	16.90	20.81	18.98	20.67	24.69	17.58	16.43	17.60

Figure 8. Net value of dairy farmers' milk by handler type (NYAM 2018

Table 1. Average additions and deductions to farm milk price ($ per cwt), by handler type (2000-2017) [a]

Source: NYAM (2018)

Order value or premium	Cooperative			Non-Cooperative			Diff
	Mean	**StdDev**	**CV**	**Mean**	**StdDev**	**CV**	***p* value**[b]
Marketing order:							
Components	15.623	3.434	0.220	15.647	3.456	0.221	0.982
PPD	1.001	0.575	0.575	1.268	0.597	0.471	0.181
Total order value	**16.623**	**3.308**	**0.199**	**16.915**	**3.283**	**0.194**	**0.792**
Handler premiums:							
Volume	0.216	0.073	0.339	0.171	0.037	0.217	0.026
Quality	0.209	0.057	0.273	0.214	0.018	0.084	0.725
Competitive	0.222	0.077	0.346	0.123	0.036	0.290	0.000
Protein	0.007	0.002	0.278	0.021	0.024	1.103	0.019
Other/rBST Free	0.030	0.032	1.068	0.016	0.013	0.785	0.095
Other/Organic/Kosher	0.078	0.046	0.597	0.028	0.015	0.546	0.000
Total premium value	**0.761**	**0.068**	**0.378**	**0.573**	**0.027**	**0.248**	**0.000**
Total order & premium	**17.384**	**3.385**	**0.195**	**17.489**	**3.293**	**0.188**	**0.926**
Patronage refunds	**0.120**	**0.110**	**0.920**				
Gross value	**17.504**	**3.385**	**0.193**	**17.489**	**3.293**	**0.188**	**0.989**
Handler deductions:							
Hauling	0.526	0.040	0.076	0.736	0.044	0.060	0.000
Dues	0.033	0.013	0.398	0.007	0.004	0.497	0.000
Milk promotion	0.148	0.002	0.001	0.149	0.008	0.056	0.610
Co-op equity payments	0.031	0.009	0.285				
Other deductions	0.015	0.021	1.410	0.029	0.055	1.913	0.320
CCC assessment	0.008	0.007	0.858	0.000	0.000	1.939	0.000
Federal order services	0.001	0.001	0.491	0.027	0.003	0.115	0.000
Total deductions	**0.762**	**0.062**	**0.081**	**0.948**	**0.065**	**0.069**	**0.000**
Net value	**16.742**	**3.355**	**0.200**	**16.540**	**3.320**	**0.201**	**0.857**

[a] Means, standard deviations (StdDev), and coefficients of variation (CV) computed by handler type, cwt = hundredweight, PPD = producer price differential.

[b] Two-sample t-tests with unequal variances were conducted for each category across handler types. *p* values for the mean difference tests are presented (two-sided), 0.000 implies ≤ 0.0001.

[a] Handlers sometimes place other types of premiums in these categories such as signup/contract, other SCC, seasonal, and technical assistance premiums, as well as cost plus adjustments and transportation credits. Handlers are asked to identify these other premiums but often default to writing "other" to encompass the wide range. In any event, the values are relatively small.

[b] The highest (lowest) milk price years were defined as those at least one standard deviation above (below) the mean federal MO statistical price. Years 2002, 2003, 2006, and 2009 were allocated as low-price-years, while 2007, 2011, 2013, and 2014 were allocated as high-price-years.