



# Milk Quality Improvement Program

2020 YTD  
*Report*

Program Supported By:  
New York State Dairy  
Promotion Order and  
Cornell University

Cornell **CALS** College of Agriculture  
and Life Sciences

## **MILK QUALITY IMPROVEMENT PROGRAM**

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# Table of Contents

1. Executive Summary	1
2. MQIP Response to COVID-19	2
3. Extension Activities	3
4. Research Activities	4
5. Financial Status	6
6. Appendix (Letters of Support)	

Page



## **1. EXECUTIVE SUMMARY**

The Milk Quality Improvement Program (MQIP) provides comprehensive support to the New York State (NYS) dairy industry throughout the farm to processing continuum. The necessity of a strong, multi-faceted and adaptable dairy focused research and extension program in NYS has been highlighted during this unprecedented period of a global COVID-19 pandemic. In the first half of 2020 our program experts have rapidly responded to the emerging needs of NYS dairy processors and regulators with resources for learning and adapting to changing conditions due to COVID-19. Overall, experts from our program along with a multi-disciplinary team from Cornell and other organizations have led 27 virtual office hours since March, 2020, 5 of which have been dairy industry specific, and have reached over 2,000 individuals. A full report of these activities can be found below (Section 2. MQIP Response to COVID-19). Additionally, our program has responded to the NY health orders by transitioning our in-person training and workshops to virtual platforms to continue to meet the needs of the NYS dairy industry. Year-to-date in 2020 a total of 7 workshops, reaching 330 participants were performed, 4 of which (reaching 255 participants) occurred virtually after the Cornell campus was shut-down March, 2020. Details of our trainings, workshops and other extension activities can be found below (Section 3. Extension Activities) and in the attached DPO Contract Assessment Tool. We have also included two letters of support from NYS dairy processors which highlight the value of our program to the NYS dairy industry, specifically during the COVID-19 pandemic.

In addition to our specific COVID-19 related activities and extension programming, our research efforts have continued amidst the Cornell campus shut down in a number of ways. For example, through routine Voluntary Shelf-life (VSL) program testing in Fall 2019 and the first two months of 2020, we identified raw milk handling practices at NYS fluid milk processing plants which may impact finished product quality. In response, we developed and administered an online survey regarding raw milk handling practices at the fluid milk plants enrolled in the VSL program. The results of this survey will be used to understand current practices and inform development of best practices for optimized raw milk handling at processing facilities to ensure high quality finished product is offered to NYS consumers. More information regarding specific Core and Supplemental research activities can be found below (Section 4. Research Activities).

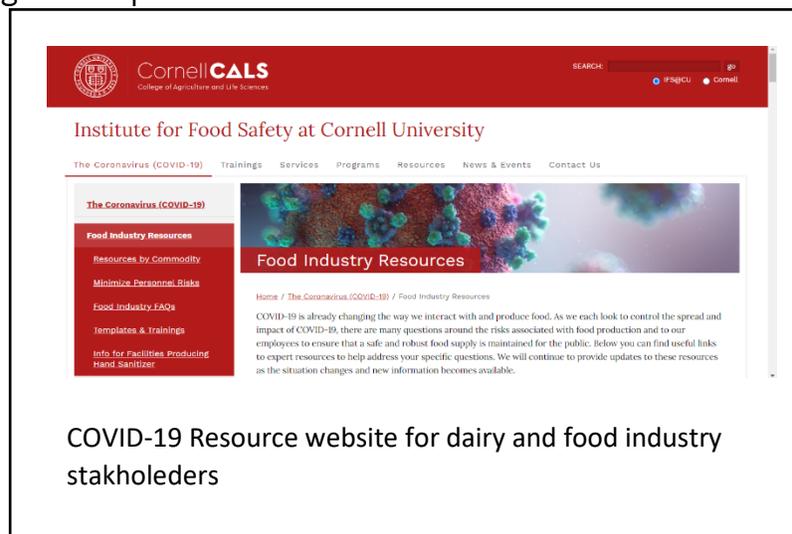
Finally, MQIP personnel have continued to request alternative funding (2 proposal requests submitted YTD), have brought in an additional \$520,000 in leveraged research funding, published research results in peer reviewed publications (5 peer reviewed papers and one book chapter have been

published so far in 2020 with another 3 peer reviewed papers submitted YTD), published lay articles (1 lay article published YTD) and meet the goals set forth in our 2020 Core and Supplemental Proposals. Details of our year-to-date progress can be found in the attached Contract Assessment Tool.

## **2. MQIP RESPONSE TO COVID-19**

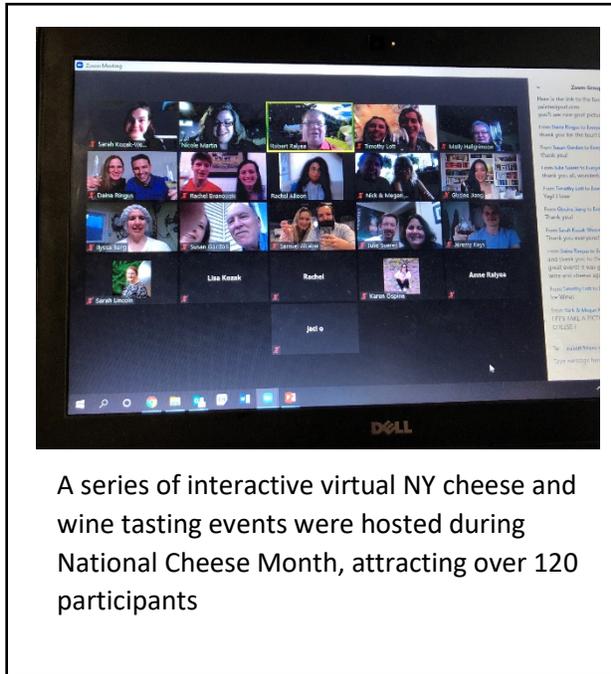
The existing expertise and infrastructure of the MQIP and Cornell Dairy Extension Team, built through the long-time support of the NYS Dairy Promotion Advisory Board, enabled rapid response to the challenges presented to the NYS dairy industry by the emergence and spread of COVID-19 beginning in March, 2020. As of June, 2020, this team of experts has held 27 virtual office hours, designed to provide resources and access to Cornell

experts, 5 of which were specifically targeted to the dairy industry, and have reached over 2,000 individuals. In addition, we have launched a [website](#) through the Institute for Food Safety at Cornell to provide verified and expert-curated COVID-19 resources for the dairy and food industry. As of June 17, 2020 a total of



72,000 users have visited the website during 90,000 sessions with an average session duration of 2 minutes. Our team has also produced [educational](#) and [training](#) videos in both English and Spanish in order to continue to provide valuable resources to the food and dairy industry during this unprecedented time. These efforts were essential for the NY dairy industry, which avoided shut-downs as were seen in other states, despite the fact that some processing plants had COVID-19 cases among their workers. Importantly we also worked with and individually supported large NY dairy facilities that experienced specific COVID-19 challenges.

In addition to the considerable effort that has been applied to supporting the NYS dairy industry specifically regarding the COVID-19 pandemic, MQIP personnel have also sought out alternative avenues to support the NYS dairy industry. For example, during the month of May, which



is National Cheese Month, we hosted a series of interactive, virtual NY focused wine and cheese tasting events. These events featured a different NYS cheese category each week (e.g., cheddar, alpine style, etc.) and our in-house and alumni experts discussed the key attributes of the product, how it's made and answered questions from participants. As a companion, we also published a list of NYS cheese makers who ship direct to consumers on our [website](#) to facilitate the purchase of NYS cheese. Over 120 individuals participated in our virtual cheese tasting event during the month of

May. Finally, on a lighter note, MQIP staff produced a short promotional video entitled [“Kids Taste Cheese”](#) to celebrate National Cheese Month and encourage consumers to purchase NY cheese.

### **3. EXTENSION ACTIVITIES**

The Cornell campus shut-down, in response to NYS health orders aimed at reducing the spread of the novel coronavirus, was a considerable challenge to our planned dairy extension programming for 2020, however, MQIP personnel quickly responded by reformatting courses to be delivered virtually. Prior to the campus shut-down in response to NYS health orders, three workshops were held, including; i) Dairy Science and Sanitation (31 attendees); ii) PCQI (29 attendees), and; iii) Sensory Immersive Experience in Dairy (15 attendees). Following the shut-down four virtual workshops have been held, including; i) Dairy Laboratory Seminar (124 attendees); ii) Dairy Science and Sanitation (55 attendees); iii) HACCP (22 attendees); iv) PCQI (54 attendees). While the shut-down necessitated a rapid restructuring of our extension programming, we have found that we have been able to continue to provide our high-quality training to NYS dairy processors throughout the COVID-19 crisis. In fact, for a number of dairy processors, participation in our online extension programming has increased during this period. For example, five

employees from Agri-Mark have participated in our online courses, which highlight the value of this method of reaching dairy processing employees, especially for companies whose facilities are not close in proximity to the Cornell campus in Ithaca.

Additionally, MQIP personnel are leveraging the unique position of the MQIP to educate consumers about the role of academia in the NY dairy industry. In 2020 we produced a [video](#), utilizing alternative funding,

highlighting the collaborative relationship that exists within the NY dairy industry between producers, processors, academia and regulatory agencies. This strong NY dairy framework, enhanced by the continued funding of the MQIP by the NYS Dairy Promotion Advisory Board, ensures that NYS consumers have access to safe, high-quality dairy products. Consumer



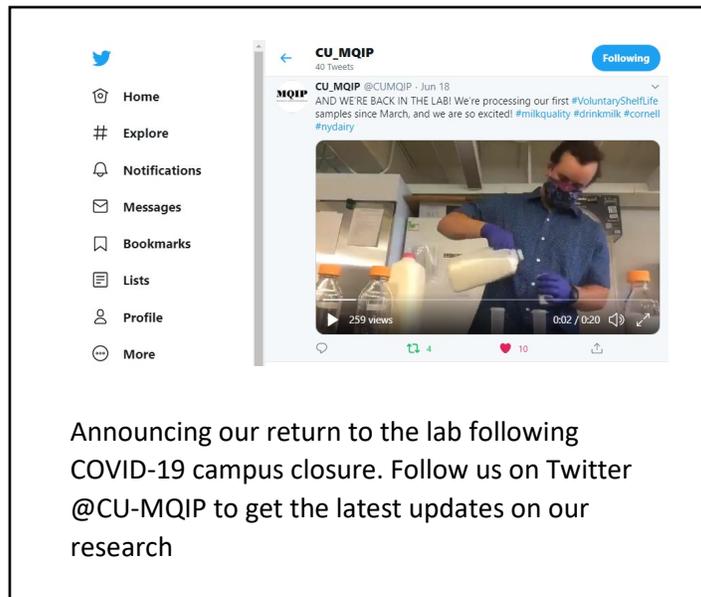
A new video produced by MQIP highlights the collaborative and progressive relationship between academia and the dairy industry in NY

confidence in the collaborative and progressive nature of NY dairy is essential to continued growth of this important industry.

#### **4. RESEARCH ACTIVITIES**

Research activities in 2020 include those conducted under the core “Dairy Product Quality and Safety Program” as well as three supplemental projects; i) Identifying risk factors for post-processing contamination in school milk across NYS (year 2); ii) Implementation of Listeria Control Strategies in Small Dairy Facilities, and; iii) Defining Raw Milk Quality Parameters that Affect Greek Yogurt Yield and Quality. With disruptions in research due to the Cornell campus and laboratories shut-down in mid-March due to the COVID-19 pandemic, progress on these research projects has not advanced as expected in the first six months of 2020. However, important strides have been made in a number of research areas, including; i) Voluntary Shelf-life program, and; ii) Rapid Response to NYS Dairy Quality and Safety Issues (highlighted above in 2. MQIP Response to COVID-19).

Between January and March, 2020 prior to the Cornell campus and laboratory closure, 123 pasteurized and 18 raw milk samples were tested as part of the VSL program. In June, upon partial reactivation of the laboratory, another 29 pasteurized and 6 raw milk samples were collected from NYS fluid milk processors and are currently being analyzed for microbiological quality. As of June, 2020 human subjects research has not been approved for reactivation, meaning that we are unable to perform sensory analysis at this time. However, our team has taken the innovative approach of applying for Institutional Review Board (IRB) approval for a home use study for VSL sensory testing. Upon approval, VSL sensory samples will be delivered to panelists homes with evaluation instructions, ultimately providing our VSL processors with valuable data regarding product quality. Resuming VSL research was a priority to



our program upon partial reactivation of our laboratory, and we have been able to collect the samples necessary to select State Fair award winners for 2019-2020. In addition, through routine VSL testing in the fall of 2019 and the first three months of 2020, a concerning trend was identified in raw milk data collected from VSL processors. MQIP personnel developed an online survey designed to evaluate raw milk handling practices at fluid milk processing facilities participating in the VSL program. Responses will allow us to understand current raw milk handling practices and subsequently develop procedures for best practices. These procedures will be communicated directly to individual participating VSL processors, incorporated into our trainings and workshops directed toward fluid milk processors and communicated in our industry newsletter. This complimentary research using the existing VSL framework to identify emerging issues with raw and pasteurized milk quality highlights the flexibility and utility of maintaining a fluid milk monitoring program in NY.

Other key research areas that have been delayed due to the COVID-19 pandemic and the resulting Cornell campus closure, include; i) benchmarking microbial quality and safety of NY powder; ii) "Identifying risk factors for post-processing contamination in school milk across NY State" supplemental

project; iii) “Implementation of Listeria Control Strategies in Small Dairy Facilities” supplemental project, and; iv) “Defining Raw Milk Quality Parameters that Affect Greek Yogurt Yield and Quality” supplemental project. These projects range from easily implementable under the current circumstances with partial reactivation of the MQIP laboratory, to challenging to implement. We anticipate that the NY powder benchmarking project will be the easiest to begin laboratory work on, with product testing beginning in July, 2020 with a total of four samplings occurring over the course of the second half of 2020. Second, we will begin to implement the Greek yogurt supplemental project which requires pilot plant and laboratory resources, both of which have recently received approval for partial reactivation. The remaining two projects (school milk and Listeria control projects) not only require on-campus resources (i.e., pilot plant and research laboratory) but also require access to off-campus resources (i.e., processing facilities and schools). This introduces an inherent challenge to current progress on these two projects. For example, with NY schools shutting down in March, 2020, NY fluid milk processors scaled back production of school milk considerably limiting our ability to continue evaluating processing factors influencing PPC in school milk. As such, we will progress with these two projects that require off-campus resources as circumstances allow, however, we anticipate that progress may be slower due to the continued influence of the COVID-19 pandemic.

## **5. FINANCIAL STATUS**

Project spending to-date, during the first 6 months of 2020, includes:

- 57% of the Core Dairy Quality and Safety Program budget – spending for this project reflects efforts of MQIP personnel for; i) Objective 1 (MQIP/VSL program); ii) Objective 3 (Encouraging NYS Dairy Innovation through Product Development Infrastructure and Technology Transfer); iii) Objective 4 (Support NYS Dairy Processing Capabilities), and; iv) Objective 5 (Rapid Response to NYS Dairy Quality and Safety Issues), specifically, in supporting the NYS dairy industry through the COVID-19 pandemic.
- 6% of the supplemental project “Identifying risk factors for post-processing contamination in school milk across NY State” budget
- 0% of the two supplemental projects “Implementation of Listeria Control Strategies in Small Dairy Facilities” and “Defining Raw Milk Quality Parameters that Affect Greek Yogurt Yield and Quality” budgets



Dairy Foods Extension,

I am writing to express my sincere appreciation for your ongoing efforts to support the Dairy Industry. This effort has always been present; however during the Covid-19 crisis your team has really excelled and the impact of your efforts during this crisis will be long-lasting and forever appreciated.

The twice a week online forum for industry to ask questions has been very informational and given those of us working daily in an essential industry the tools we need. This has ensured that we are able to continue to operate in this challenging business climate. The success of the dairy industry is obviously critical; having your up to date, continuously available information has been very important to our ongoing success. As the landscape has changed throughout this crisis the themes of your support have adapted quickly and have kept our industry informed with the latest information and guidance.

I look forward to the day when this crisis ends and we can return back to the services we have relied on you for in the past: Employee Training, Food Safety and Product Quality guidance and assistance.

Thanks again for all that you have done and continue to do,

A handwritten signature in blue ink that reads "Carl Moody". The signature is fluid and cursive, with the first letters of each word being capitalized and prominent.

Carl Moody  
Quality Assurance Compliance Manager  
2375 South Park Avenue  
Buffalo, NY 14220



# O-AT-KA Milk Products Cooperative, Inc.

P.O. BOX 718 • BATAVIA, NEW YORK 14021-0718 • 585/343-0536 • FAX 585/343-4473

05/18/2020

Dear Sir or Madam,

I'm writing to offer my support for the continued funding of the Cornell University's Extension Program in Food Science.

Food Manufacturing is an economic driver in the Finger Lakes, and Western NY regions. The extension agents apply a unique skillset; combining academic scientific knowledge with practical real world experience to help food manufacturers solve technical issues and remain compliant with evolving law and regulation.

There are two specific examples I'd like to comment on that illustrate the support Cornell Extension has provided to me. First, is compliance with FSMA. While developing a Food Defense Plan for my facility, the Extension Staff provided service as a third party consultant to evaluate both the compliance, and the effectiveness of the interventions I had put in place. Additionally, the Extension Agents were able to provide Food Defense training to all of the members of my cross-functional Food Defense Team. The second example is the support the Extension Office has provided during the response to the Covid-19 Crisis. During a conference call between Cornell and industry, a very academic answer was provided to a question posed by a food processor. One of the Extension Staff on the call interjected, "That was the textbook answer, however, here is how you can apply that in the plant." It is this practical application of scientific knowledge where the Extension Program demonstrates its value. It is for this insight that I support the continued funding of Cornell University's Extension Program in Food Science.

Sincerely,

Andy Werner  
Sr. Director QA/R&D  
O-AT-KA Milk Products

***Innovative Solutions. Proven Results.***