

Milk Service in Vermont Schools: Decision Making Criteria, Best Practices and Case Studies



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Introduction

Milk in Vermont schools, as with schools across the United States, is an essential part of day-to-day meal service. The National School Lunch Program (NSLP), a federally assisted meal program that has reached over 100,000 public, non-profit, and private schools, provides nutritionally balanced meals at a low cost, or at no charge, to more than 31 million school children each day. To meet the nutrition standards, set by the *2015 Dietary Guidelines for Americans*, the NSLP requires 8 ounces of milk must be offered or served at school meals. Milk provides children with essential vitamins and nutrients, including protein, potassium, and vitamins A, D, and B12. It is for this recognized nutritional value that including milk as an option in school meals is beneficial for student nutrition and health.

Dairy is a large part of Vermont's cultural and economic identity, accounting for over 7,500 jobs in the state (Vermont Dairy Task Force, n.d.). Despite this, many of Vermont's schools do not have access to the necessary equipment to serve milk as part of their meal service. This is largely the result of a lack of information and funding. The Vermont Agency of Agriculture, Food and Markets (VAAFAM) makes the process of acquiring milk coolers more feasible for schools through the Milk Cooler Sponsorship Program. Through this program, VAAFAM supports access to milk for all Vermont students in a manner that increases consumption, reduces cost, and minimizes waste.

The research and case studies included in this report is intended to help Vermont schools make an informed decision about milk service as part of their participation in the NSLP. Since the clear majority of school milk programs involve the distribution of individual containers, this report largely reflects the decision-making that would accompany a transition to bulk milk service. However, a diverse range of case studies are included to reflect the various ways that assistance can be made to schools to suit their specific needs around milk service.

Decision Making Criteria

The following criteria are important to consider when deciding whether to serve bulk milk or pre-packaged individual containers.

Waste Impacts

Waste Reduction Potential

Data indicates that using bulk milk dispensing coolers reduces both a school's container waste output as well as wasted milk. Reduction in waste is realized when schools opt for reusable cups for milk service rather than milk cartons or bottles. A study of a Minnesota high school showed a reduction in average daily waste production from 82.5 pounds per day to 1.25 pounds per day after switching from individual containers to bulk milk. Data from this same school also show a reduction of 0.9 gallons per day in wasted milk (Recycling Association of Minnesota, n.d.). One reason for the reduction of wasted milk at the Minnesota high school was that individual milk containers were unrefrigerated during meal service times, which reduces the carton shelf life and led to additional, unnecessary waste. Bulk milk, however, remains cold during the entire time of service if milk is poured directly from a bulk milk dispensing cooler (Recycling Association of Minnesota, n.d.).

At the time of publication of this report, Vermont's material recovery facilities were unable to recycle gable top milk cartons (the most common packaging of carton milk), so all discarded milk cartons are unable to be recycled easily and end up in landfills. Waste reduction has been cited in many case studies as a key reason for making the choice to serve bulk milk (Kaskey, n.d.; Larsen, 2014; Recycling Association of Minnesota, n.d.; The Lunch Box, 2016; Thurston County Public Works Department, 2016). Vermont based waste audit data, completed in select schools in Chittenden County during the spring of 2016, and Vermont Agency of Natural Resources School Recycling Scorecard reflect that serving bulk milk is a recommended practice to reduce container and milk waste (Berkfield, 2016).

Neutral Waste or Increase Potential

Though bulk milk has the potential to reduce container waste that is dependent on the type of cup chosen to serve bulk milk. For bulk milk service to reduce waste, it must be accompanied by reusable cups rather than disposable ones. Use of disposable cups will not likely lead to a decrease reduced waste output (The Lunch Box, 2016). Also, note that while bulk milk service is expected to reduce container waste and milk waste, there may be an increase water usage to wash reusable cups and/or pitchers (Recycling Association of Minnesota, n.d.).

Financial Considerations

Savings from Switching to Bulk Milk

Research conducted in Vermont schools and elsewhere point to cost-savings with the implementation of bulk milk service (Berkfield, 2016; Larsen, 2014; Mace, 2016; Recycling Association of Minnesota, n.d.). Considering milk prices alone, it has been demonstrated that bulk milk costs less per 8 oz. serving than individual containers (Mace, 2016; The Lunch Box, 2016). Research from schools in Vermont shows that schools paid, on average, \$0.25 per 8 ounces of milk bought in bulk, compared to \$0.35 per 8 ounces of carton milk. This research also concluded that schools could get a higher profit margin from students who bought milk a la carte (Berkfield, 2016). Some school districts, however, have experienced higher prices for bulk milk (Recycling Association of Minnesota, n.d.).

One case study (see Case Studies section of this report) in Vermont identifies cost-savings associated with bulk milk because the school accrued a measurable daily loss due to disposal of individual milk containers (Kaskey, n.d.). Indeed, a reduction in container waste could lead to a reduction in waste removal costs.

Costs of Switching to Bulk Milk

Initial, up-front costs associated with the implementation of bulk milk include cups, dispensing coolers, and dishwashing equipment. Schools should also consider whether lids for cups are necessary to prevent spillage, and thereby wasted milk and staff time to clean up spills. Dispensing coolers purchased outright can cost around \$3,000. Some distributors/producers, however, offer dispensing coolers on loan for schools that purchase bulk milk (The Lunch Box, 2016). Moreover, VAAFAM sponsors schools to partially cover the costs of purchasing bulk milk dispensing coolers through the Milk Cooler Sponsorship Program. In addition to acquiring a bulk milk dispensing cooler, schools will need an industrial dishwasher to handle reusable cups. The Minnesota high school, referenced above, spent more than \$700 on new dishwashing racks to accommodate their new bulk milk service.

In addition to initial, up-front costs, bulk milk may require additional staff time. Both Kaskey (n.d.) and Larsen (2014) found that bulk milk service requires approximately 15 additional minutes per day in staff labor. Additional time commitments as associated with sanitizing coolers, washing cups, and pre-dispensing milk for students (if that option is chosen over student self-service). It is important to consider whether bulk milk will be poured by a staff member (which would add labor costs) or if students will be permitted to serve themselves. Moreover, the number of servings permitted for each student must be considered, because allowing more than one serving per student would increase costs.

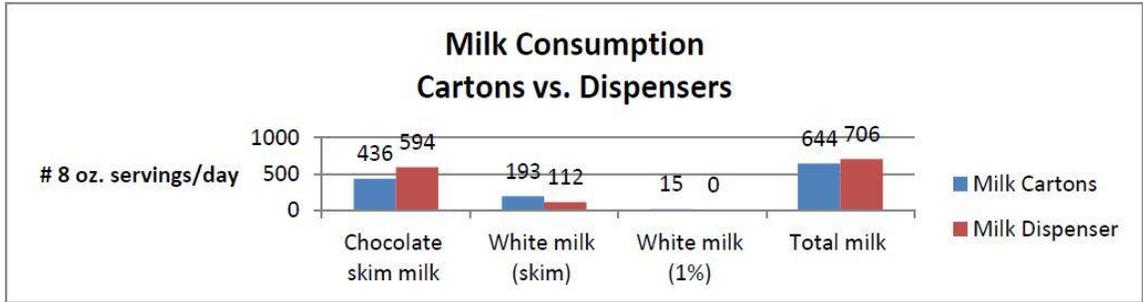
Child Nutrition Standards

Paramount to any decision around milk service in school is student health. The NSLP distinguishes milk as an option for delivering essential nutrients to students in a relatively low-cost way (Kaskey, n.d.). The Federal requirements for milk service in schools participating in the NSLP dictate that:

Schools must ensure that at least two choices of fluid milk from the following list are offered throughout the meal service on all reimbursable meal service lines: flavored or unflavored fat-free milk, low-fat (1%) milk, fat-free or low-fat lactose-reduced milk, fat-free or low-fat lactose-free milk, fat-free or low-fat buttermilk, and fat-free or low-fat acidified milk. Students must be allowed to choose milk from at least two milk varieties, even in alternate meal service locations. It is also important for schools to consider where a bulk milk dispensing cooler would be placed, as Child Nutrition Standards require it to be within the cafeteria. The location of the dispensing cooler in the cafeteria must be where an electrical outlet is accessible.

If any milk substitutions are made, schools must ensure they are allowable and required documentation is on file. For additional information, refer to 7 CFR 210.10(d) and 7 CFR 210.10(m); FNS memorandum SP 32-2015, *Statements Supporting Accommodations for Children with Disabilities in the Child Nutrition Programs*, FNS Instructions 783-7, *Milk Requirement-Child Nutrition Programs* (revised, issued January 24, 1995); 783-2, *Meal Substitutions for Medical or Other Special Dietary Reasons* (revision 2, issued October 14, 1994); and FNS memorandum SP 07-2010, *Q and A's: Milk Substitutions for Children with Medical or Special Dietary Needs (Non-Disability)*, issued November 12, 2009 (United States Department of Agriculture, n.d., p. 67-68).

Data on students' reactions to bulk milk or individual containers vary. Some resources indicate that bulk milk is preferred by students due to colder serving temperatures and fresher taste (Berkfield, 2016; Recycling Association of Minnesota, n.d.; The Lunch Box, 2016). A study of a Minnesota high school found an overall increase in student consumption of milk; specifically, an increase from 644 8 oz. servings served per day to 706, as shown in the graph below (Larsen, 2014). Other sources indicate students have mixed reactions to bulk milk service (Kaskey, n.d.).



Source: Larsen, 2014

Leadership and Communication

Making a change to milk service in schools should be accompanied by an outreach strategy to notify food service staff and students of the changes. Food service leaders and student groups, among others, can help with communication and announcements to ensure a smooth transition. The following questions can help guide communication and logistical decision-making:

- Does the bulk milk program have a champion at the school?
- Are there student groups that can get involved?
- Have students been made aware of the changes?
- Are members of staff on-board with changes in food service routine?
- At what time of the year would the implementation of bulk milk service have the smoothest transition?
- Will students serve themselves? If not, how will staff time and placement of milk cups be coordinated?
- With bulk milk, what types of cups will be used (e.g. re-usable, compostable)?
- Will students be allowed more than an 8-oz. serving of milk with bulk milk service?
- Is bulk milk available from current distributor, and at what cost? Are dispensing cooler loans available?
- Is flavored milk an option?

Case Studies

The following four case studies from Vermont schools, districts or supervisory unions (SU) have analyzed their food service system, and specifically their milk service operation. The first case study describes two schools that switched from bulk milk to carton milk. The other three case studies describe schools that have already switched from carton milk to bulk milk or are exploring the option. The questions asked of each school in the case studies can be found in Appendix 1 of this report. All case studies revolve around the same central analyses: waste from cartons, liquid milk waste, and labor expectations of either bulk milk service or pre-packaged cartons. Most of the schools came to the same conclusion that bulk milk reduces waste but requires more planning and staff effort. Each school shares how they have made their own decision about what makes the most sense given their individual circumstances.

Case Study 1: From Bulk Milk to Cartons

Recently, two schools in a Vermont SU made the switch from bulk milk to individual cartons. This SU oversees several schools and serves students from kindergarten to grade 12. The SU provides its older students with a wider variety of milk; each school in the SU offers skim and 1% milk, but flavored milks are only offered at middle schools. Reinhart is the distributor of this milk. Following this switch from bulk milk to cartons, two out of three schools in the SU now serve milk in cartons.

This decision to switch from bulk milk to cartons at two schools was made by the manager and food service director and was influenced by cost and labor considerations. The food service director discovered that bulk milk required additional labor to dispense exactly 8 ounces of milk into each cup, a requirement to meet the child nutrition standards set by the NSLP, and to clean up spills, which was an issue particularly among younger students. In addition to the labor requirements, bulk milk was costing the schools an additional two cents per 8 oz. serving plus requiring the purchase of reusable cups.

To make the transition from bulk to individual milk cartons, the schools applied for VAAFM's Milk Cooler Sponsorship Program, which provided \$1,000 toward the purchase of a new milk cooler. Without funds from this program, the schools could not afford new milk coolers. The schools found that serving milk in cartons required less labor and preparation time. The switch to cartons generated more waste, in the form of disposed cartons, but the food service provider decided that paying for waste removal was more economically feasible than investing resources in the service of

bulk milk. Overall, the schools' leadership hopes this switch will bring more consistent product and balanced costs and reduced labor time and product waste.

Case Study 2: Considering the Switch from Cartons to Bulk Milk

This school district is made up of three schools: an elementary school, a middle school, and a high school. The elementary school serves 675, kindergarten through 3rd grade students; the middle school serves 525, 4th through 8th grade students; and the high school serves 400, 9th through 12th grade students.

All three schools in the district serve skim milk, 1% milk, skim chocolate milk (only at lunchtime), and skim strawberry milk in cartons provided by Hood Milk. At lunch service, the milk coolers are located at the beginning of the lunch line for students to grab their milk carton. This process only requires one staff member to fill these coolers in the morning and throughout service, as needed. The high school occasionally serves flavored milks from Kimball Brook a la carte. These schools have incorporated milk into the classroom, as well as the cafeteria. K-3 classes have participated in the Dairy in the Classroom program for the past 2 years. Dairy education is also incorporated into the 4th grade Vermont History unit.

This school district is currently researching the possibility of switching from serving cartons to a bulk milk system. The idea to switch to bulk milk began with a proposition by the high school's student council. The student council was conducting a waste audit, and the idea of a bulk milk dispensing system came up as part of a beautification effort in the cafeteria. This campaign for bulk milk was then brought to the attention of the Farm to School Committee. Since milk cartons cannot currently be recycled in Vermont, the combined 97.5 gallons of carton waste produced each day by the three schools ends up in a landfill. For that reason, the pursuit of a bulk milk cooler became both environmentally and economically driven, with the reduction of waste removal costs. Overall, the goal of their campaign was to decrease the waste that milk cartons produce.

The district has considered the "Fuel Up to Play 60" program to access grant funding to fund the switch to bulk milk coolers. Fuel Up to Play 60 is a nutrition and physical activity program launched by the National Dairy Council and National Football League, in collaboration with the US Department of Agriculture. Along with Fuel Up to Play 60 grant funding to cover the cost of the transition, the district is considering renting bulk milk coolers.

The district anticipates spillage and an initial decrease in milk consumption to be the principal drawbacks to the transition. They anticipate an initial decrease in milk consumption by high school students that will no longer be able to carry their milk to-go, but the district predicts that this decrease will only be temporary and over time students will adjust to the bulk service concept.

Case Study 3: From Cartons to Bulk Milk

An elementary school located in southern Vermont has recently made the transition from milk cartons to bulk milk. This school serves over 170 Pre-K through 8th grade students. The school's meal program is independently run, meaning it is not part of a management company or a food service director's association. Their meal program serves 1% milk and skim milk.

There were many factors that led this school to replace milk cartons with a bulk milk dispensing cooler, including waste, taste, and labor. Students did not like the taste of the milk from the cartons;

complaints included a “cardboard taste” or lukewarm temperature. This distaste contributed to an excess of liquid milk waste, which led to heavy, leaking trash bags for the custodial staff to deal with. In addition to wasted liquid milk, there was considerable container waste from the cartons themselves. The school estimates that roughly 45,000 cartons are wasted every school year. Moreover, the initiation of Vermont’s Universal Recycling law in 2012 inspired the school to reduce their waste output.

The transition to bulk milk at this school led to two notable changes. First, additional labor was required to sanitize the bulk milk dispensing cooler, wash reusable cups, and switch out the five gallon bags that are required for the bulk milk dispense. Second, the amount of milk consumed by students increased; when students were given the chance to fill their own cups with milk, they were likely to drink more than one serving.

Despite initial input costs of reusable cups and dishwashing racks, the projected long-term budget faced little change in the transition, as the cost of bulk milk compared similarly to the cost of individual cartons. The school believes that the initial input costs will eventually be off-set by a reduction in waste hauling costs and the labor costs for floor and carpet cleaning necessitated by leaky trash bags.

At this point, the school has experienced few drawbacks after switching to bulk milk in their meal program. The only challenge the school faces with bulk milk is people coming in during non-meal times to take milk. Otherwise, the bulk milk dispenser is on track to fulfill the school’s goals of reducing liquid and container waste and increasing milk consumption among students.

Case Study 4: The Success of a Recent VAAFM Milk Cooler Sponsorship Recipient

The elementary school highlighted in this case study serves students from kindergarten through 6th grade. This school serves plain skim milk and 1% milk from Hood. At this school, milk goes beyond the cafeteria and into the school’s curriculum. Every year, an all school assembly is held to teach the students about dairy products produced in Vermont.

Recently, this school made the switch from individual milk cartons to bulk milk dispensers. This decision was motivated by environmental concerns, the desire for better tasting milk, financial factors, and the need for a more sustainable and efficient way to serve milk to students. After receiving a suggestion from the Agency of Natural Resources in 2015, the school applied for and received a VAAFM Milk Cooler Sponsorship award, which subsidized the purchase of a bulk milk dispensing cooler.

This school has a history of being environmentally motivated. They utilize sustainable practices like composting in their cafeterias, and even won an award for environmental excellence for their recycling efforts. As milk cartons are not currently recyclable in Vermont, the school was disposing nearly 36,000 cartons each year. School faculty concluded that this was unsustainable, and after consultation with the Vermont Agency of Natural Resources, they began the process to apply for the Milk Cooler Sponsorship Program to obtain a less wasteful milk cooler.

Within the first two months of their new bulk milk dispensing cooler being installed the school has experienced more benefits than just waste reduction. Students—especially younger ones—reported enjoying the taste of the bulk milk more. In the wake of their switch to bulk milk, the school also

omitted chocolate milk for nutrition reasons, which led to a decrease in milk consumption among the older students. School officials, however, predict that this reduction in consumption will only be temporary, as the quality of the plain bulk milk has been strong enough to gain popularity among the rest of the school. Despite initial up-front costs, the school is now beginning to see a cost savings of \$0.10 per unit milk served.

Initially, there was some hesitation among cafeteria staff asked to adopt new kitchen infrastructure to accommodate bulk milk service. The staff was reluctant about changes in staffing structure and responsibilities resulting from the switch to bulk milk. There were worries about dishwashing, cup storage, redesign, and additional staffing needs. However, once the bulk milk cooler was installed and the staff was acclimated to it, those worries were dispelled.

Overall, the potential benefits of switching to bulk milk outweighed the concerns and hesitation among cafeteria staff, and initial concerns were ultimately resolved within two months of the bulk cooler installation. Now, the school is on track to fulfill its goals of waste reduction, student nutrition, and economic vitality.

Conclusion

From the research our team has done, any method of milk service in schools will have its own set of benefits and challenges. There is no right or wrong answer when it comes to choosing milk service methods. The purpose of the information presented in this report is to assist schools in determining which milk service option is the right fit for their goals and expectations.

If a school prioritizes minimizing labor and/or cost of labor, then individual milk cartons may make the most sense. If a school prioritizes waste reduction, then bulk milk may be the best option for them. By far, the best strategy for choosing a new milk cooler starts with determining the school's goals and desired outcomes of a milk service. Once a school understands its priorities, a strategy can be chosen to fit the school's unique needs.

Appendix 1

Questions for schools that switched from bulk milk to cartons.

- 1) What kind(s) of milk do you currently serve? Do you serve flavored milk, like chocolate or strawberry, or strictly plain milk? Do you serve 1%, 2%, and/or whole milk? Other?
- 2) Which company or companies processes and distribute the milk you serve? (Hood, Thomas, Monument, Reinhart, etc.) List all the companies if there are more than one.
- 3) Are you part of a management company or Food Service Director's Association?
- 4) Is milk incorporated in any kind of agricultural literacy at schools in the Chittenden Supervisory Union (in and outside of the classroom)?
- 5) To your knowledge, how many schools in your Supervisory Union use bulk milk? How many use cartons?
- 6) Which schools were the ones to recently make the switch from bulk milk to milk cartons?
- 7) What led your school to consider switching back to cartons? Who made this decision?
- 8) Would you describe this decision to switch to cartons being economically motivated, environmentally motivated, neither, or both? Please, detail all reasons.
- 9) How has the switch from bulk milk to cartons impact your schools?
 - a) Financial- Did the move from bulk to cartons impact your budget? If so, how was your budget impacted?
 - b) Waste- Was there an increase or decrease in waste? Do you have any data available that is related to milk program waste?
 - c) Labor- What scale of labor is required for bulk milk v. cartons?
 - d) Consumption- Did you see an increase or decrease in milk consumption among students under a bulk milk program versus cartons?
 - e) Child nutrition regulations- Did the move from bulk to cartons have an impact on your ability to comply with child nutrition regulations for reimbursable meals, etc.?
 - f) Are there other impacts you have seen in the move from bulk milk to cartons?
- 10) Did the students prefer bulk milk or milk cartons more? Which did the faculty and staff prefer?
- 11) How did you hear about the Milk Cooler Grant Program? What lead to the decision to use this grant program as means for funding the new milk coolers? Would you have switched from bulk to cartons if the grant program was not an option?
- 12) What prompted the switch from bulk milk to milk cartons? Who was the one to make this decision?
- 13) Do you anticipate any drawbacks to switching to milk cartons?
- 14) What are the goals and expected outcomes of switching back to cartons?

Questions for schools which have not purchased bulk milk.

- 1) What kind(s) of milk do you currently serve? Do you serve flavored milk, like chocolate or strawberry, or strictly plain milk? Do you serve 1%, 2%, and/or whole milk? Other?
- 2) Is the milk sold in cartons? Y/N
- 3) Which company or companies processes and distribute the milk you serve? (Hood, Thomas, Monument, Reinhart, etc.) List all the companies if there are more than one.
- 4) Are you part of a management company or Food Service Director's Association?
- 5) How long have you had your current milk coolers? If you do not use milk coolers, how do you store your milk?
- 6) Who is currently involved with the milk program at your school? List each staff member's role at the school and role in serving milk to students.
- 7) How has Milton's current milk program impacted?
 - a) Milk consumption (ex: increase, decrease, no change, don't know, other)
 - b) Waste - do you have any data related to discarded milk and related packaging?
 - c) Do you allow students to share unwanted/unopened milk?
 - d) Labor – What scale of labor is required for Milton's current milk program?
 - e) Meal program viability- If no change is made in Milton's milk program, could you envision Milton's current milk program staying at the same level of student consumption? Do you expect a decrease? Do you expect an increase in student milk consumption?
- 8) Is milk incorporated in any kind of agricultural literacy curriculum at Milton? Is dairy incorporated in the school's community beyond consumption?
- 9) What led your school to consider switching to bulk milk? Who made this decision?
- 10) Would you describe the school being economically motivated, environmentally motivated, neither, or both? Please, detail all reasons.
- 11) How far along in the bulk milk dispenser research process are you? What have you found for each category:
 - a) Cost- cup purchases, cooler order, milk cost, etc.
 - b) Labor considerations
 - c) Water use: increased dishwasher use
 - d) Waste- will it reduce waste?
 - e) Child Nutrition Program Regs- cup size, reimbursable meal, etc
 - f) Logistics (distribution, placement of cooler, cup kind/size)
 - g) Potential impact on consumption- student preference
- 12) Have you looked at any particular case studies as a part of your research? If so, which ones?

- 13) Do you anticipate any drawbacks to switching to bulk milk? If so, what are they?
- 14) If your school does decide to switch to bulk milk, what avenues will the school take to fund their new milk dispensers? Ex: Would you buy your own dispenser or would you consider renting one for a small fee, like \$30/month?
- 15) What are your goals and expected outcomes in the change to serving bulk milk in your school?

Questions for schools that switched from cartons to bulk milk

- 1) What kind(s) of milk do you currently serve? Does your school serve flavored milk, like chocolate or strawberry, or strictly plain milk? Does serve 1%, 2%, and/or whole milk? Other?
- 2) Which company or companies processes and distribute the milk Putney serves? (Hood, Thomas, Monument, Reinhart, etc.) List all the companies if there are more than one.
- 3) Are you part of a management company or Food Service Director's Association?
- 4) Is milk incorporated in any kind of agricultural literacy at your school (in and outside of the classroom)?
- 5) What led your school to consider switching from milk cartons to bulk milk? Who was the one to make this decision?
- 6) Would you describe this decision switching to bulk milk as being economically motivated, environmentally motivated, neither, or both? Please, detail all reasons.
- 7) How has the switch from cartons to bulk milk your school impacted the following?
 - a) Financial- Did the move from cartons to bulk impact the budget? If so, how was the budget impacted?
 - b) Waste- Was there an increase or decrease in waste? Do you have any data available that is related to milk program waste?
 - c) Labor- What scale of labor is required for bulk milk v. cartons?
 - d) Consumption- Did you see an increase or decrease in milk consumption among students under a bulk milk program v. cartons?
 - e) Child nutrition regulations- Did the move from bulk to cartons have an impact on the ability to comply with child nutrition regulations for reimbursable meals, etc.?
- 8) Are there other impacts you have seen in the move from bulk milk to cartons?
- 9) Are students more satisfied with bulk milk than they were with cartons? Which do the faculty and staff prefer?
- 10) What led to the decision to use this grant program as means for funding new milk coolers? Would you have been able to switch from milk cartons to bulk if the grant program was not an option?
- 11) Do you anticipate any drawbacks to switching to bulk milk?
- 12) What are the goals and expected outcomes of switching to bulk milk?

References

- Berkfield, R. (2016) *Vermont bulk milk*. Paper presented to Vermont Agency of Agriculture, Food & Markets.
- Kaskey, L. (n.d.). *From bottles to bulk milk: Environmentalism in the lunch line*. Paper presented to Vermont Agency of Agriculture, Food & Markets.
- Larsen, K. (2014). *Bulk milk dispenser review: A case study at New London-Spicer High School*. Youth Energy Summit. Retrieved from <http://www.youthenergysummit.org/wp-content/uploads/2008/09/Bulk-milk-dispenser-report-7-21-2014.pdf>.
- Mace, R. (2016). *Elementary school milk audit*. Paper presented to Vermont Agency of Agriculture, Food & Markets.
- Recycling Association of Minnesota. (n.d.) *Bulk milk dispenser review* [PowerPoint slides]. Retrieved from https://recycleminnesota.org/wp-content/uploads/2014/10/Milk-Dispensors_MFairbourne-PreConf2014.pdf.
- The Lunch Box. (2016). *Milk-Bulk!* Retrieved from: <http://www.thelunchbox.org/procurement/milk-bulk>.
- Thurston County Public Works Department. (2016). *Tips and case studies to reduce organic waste*. Retrieved from <http://www.co.thurston.wa.us/solidwaste/business/tips.html>.
- United States Department of Agriculture. (n.d.) Administrative review guidance manual: For monitoring of program requirements under the National School Lunch Program, School Breakfast Program, and other Federal school nutrition programs. Retrieved from <http://www.fns.usda.gov/sites/default/files/ARguidancemanual.pdf>.
- U.S. Department of Health and Human Services and U.S. Department of Agriculture. 2015 – 2020 *Dietary Guidelines for Americans*. 8th Edition. December 2015. Available at <http://health.gov/dietaryguidelines/2015/guidelines/>.
- Vermont Dairy Task Force. (n.d.) *Vermont's Dairy Industry: More than just "Milk Money"*. Informational pamphlet put out by Vermont Dairy Task Force.