Shipping of dairy foods direct to consumers is on the rise as online purchases are increasing. This article covers essential packaging and shipping issues that dairy processors will need to navigate for success.

Consumers increasingly continue to turn to purchasing food/groceries online. In 2018 and 2019, grocery e-commerce comprised 2.7% and 3.4%, respectively, of total grocery sales. Pre-COVID, grocery e-commerce for 2020 was projected to be 4.3% of grocery sales, however, the pandemic accelerated this growth to 10.2% as large numbers of consumers suddenly and unexpectedly searched for online options for their food needs (Mercatus and Incisiv, 2020).

Fluid milk and natural cheese saw substantial increases in e-commerce sales during the pandemic. For instance, natural cheese online sales increased 160% in April 2020 and 193% in May 2020 (Midwest Dairy). Among consumers that purchased dairy products online during COVID-19, an IRI survey found that 70% indicated that they will continue purchasing online. For value-added dairy producers, online (e-commerce) product sales offer the opportunity to not only provide in-person customers with another convenient option to make purchases but also to access non-local customers and consumers.

Cheese (hard, soft, semi-soft), yogurt, ice cream, butter, etc. are all items that can be shipped directly to customers. However, the approach for shipping each of these products may differ. Regardless of the type of product that is being shipped, the top consideration is product quality. Quality can never improve throughout the shipping process; it will be maintained or decrease. In addition, safety is always a requirement.

Successful shipping of dairy products requires that the direct marketer understand why customers make an online purchase for delivery. Convenience, reliability, affordability, and flexibility are some reasons consumers turn to e-commerce. E-commerce allows consumers to purchase directly from businesses on their schedule. For instance, if consumers don’t have time during business hours to travel to an on-farm market or attend the farmers’ market that the value-added dairy processor is selling at, they can place an order at a time that is convenient. Consumers also have the opportunity to purchase from non-local businesses allowing them to try new or different products that may not be available to them locally.

It can be difficult to determine customers’ previous experience (or lack thereof) with having dairy products shipped to them or their knowledge of the specific dairy products that are available. Therefore, direct marketers need to be concerned with the customer’s first impression upon opening their order, delivery experience, and product quality. When customers order food products online, they expect that items will:

1. Be transported between the business and their home in a short period of time. That is, their package will not be sitting in a warehouse or in a delivery truck or plane any longer than necessary.
2. Arrive in a safe and appealing condition. If a product needs to be kept cool, customer expects that when they open the package, the interior will be sufficiently cool so that food safety and quality is not called into question.

Setting expectations is key to ensuring a positive customer experience in having dairy products shipped to them. This can be achieved by answering the questions listed below and, once decisions have made regarding each, posting clear and visible shipping information on the business’s website. It is important that consumers can easily locate the information, so make sure that it is accessible from several spots on the website and online store.

Some of the issues to address in planning include:
• Geographic locations/destinations to where products will be shipped
• Days of the week that products will be shipped
• Shipping near holidays
• Shipping during excessive high temperatures or non-conducive weather
• Will deliveries need to be accepted in person (signed for)
• Are P.O. boxes acceptable shipping destinations
• Product handling instructions upon receipt
• Customer service contact information (for customer questions, concerns, or complaints)

Examples of Customer FAQs

• How are products shipped?
• When will my order ship?
• What are the shipping rates?
• My order never arrived
• An item is missing from my shipment

Additionally, keep in mind that the individuals placing an order (customers) potentially may not be the individual receiving the product (the consumer). When this occurs, it is doubly important to ensure that shipping processes are well-planned and executed as the impressions and experiences of both parties will be impacted.

Once decisions are made about shipping products to customers, the work has only just begun. The following aspects should be considered in planning for packaging and shipping of dairy products.

Packaging Materials and Packing

Proper packaging and packing for the dairy products that will be shipped are essential to ensuring that products arrive in the expected condition for customer satisfaction. The goal when packing boxes for shipping is keeping products cool and secure.

Packaging consists of more than just the outer container. Decisions also will need to be made regarding inner materials (cushioning and/or insulation), coolants, and labeling and/or instructions. The choice of packaging will be influenced by both the product and the individual packaging. Will cheese be shipped in wax, yogurt in plastic or containers, or ice cream in paperboard containers?

A number of types of coolants and cushioning materials are available to use for shipping. For instance, cheesemakers have shipped products cushioned in hay, wood shavings, or other materials. (Image 1). First, make sure that whatever coolant and cushioning/insulation material you choose to use is a safe material. The packaging and packing materials should not be a source of contamination to the food. For example, packing materials that could puncture a plastic wrap may introduce contamination or inadvertently introduce foreign material into the food.

Consider also the impression it will make with the customer. For instance, while hay may be an easily accessible and plentiful cushioning material, will customers be concerned that it came from a less than clean environment and could be a source of contamination of the food? From a financial perspective, it may be tempting to skimp on package cushioning, however, consider how often the shipment will be handled and transferred between individuals during transit. One experienced shipper of cheese estimated that a package is dropped nearly twenty times before reaching its destination. In light of the handling that it undergoes, a product should be sealed tightly or the closure reinforced to avoid leaks or contamination. Adequate packing will protect the product as well as keep it in place if close proximity to the coolant is required. Pack the box to minimize movement.

Tip: Request samples of different packaging to allow an opportunity to test them to see which will fit your needs.

Coolants (such as dry ice or gel packs) and products should be packaged to prevent leakage that could jeopardize product safety and quality. Consider the safety of the coolant that is used. Be sure to plan ahead to allow sufficient time for adequate cooling or freezing of the gel packs prior to shipping. Additional handling instructions may be necessary. Take note of and make accommodations for the added costs associated with the weight and size of adding coolants to...
maintain refrigeration temperatures when shipping. While varying recommendations exist, a ratio of one pound of gel pack for every two pounds of product is ideal. Also, consider shipping products overnight rather than 2-day delivery. Ensuring safe products and having a satisfied customer will outweigh any additional costs. Some products only may be shipped seasonally due to weather conditions and concern about product temperature abuse. Soft cheeses should arrive at their destination at or below refrigeration temperatures (35 degrees F) for safety while colder shipping temperatures will aid in preserving the shelf life of other hard cheeses (USDA FSIS, 2015).

After packaging materials are determined, pack products in a manner that maintains product integrity. An American Cheese Society webinar offered the following guidance on how to pack boxes for shipping of dairy products. Harder cheeses are more robust, so they should be packed on the bottom with softer cheeses on top. Place ice packs on the top for closer proximity and ability to cool the softer cheeses and allow for better air flow in the package. Additionally, the American Cheese Society suggests the following plan for packing layers from bottom up: box -> liner -> crinkle -> cheese -> crinkle -> cheese -> crinkle -> ice packs.

Certain products such as soft cheese may require greater care when shipping such as additional ice packs or insulation materials. Use an infrared thermometer to check the temperature and ability of your packing choice to keep the items within the intended temperature range during shipping. Consult federal and state guidelines for required receiving temperatures (USDA FSIS Mail Order Food Safety). Label packaging as “perishable” or “refrigerate upon arrival” to denote the need for immediate refrigeration when the customer receives it (Images 2 and 3).

One way to ensure that packaging materials and packing methods will endure the rigors of shipping and reach customers as intended is to send a few test shipments to yourself, friends, or family. This testing will allow for inspection of the package and products and the ability to make adjustments prior to launching shipping to customers.

Video Demonstration

This video demonstrates how to package a shipment of cheese.

Transportation and Delivery

The delivery service utilized also will impact the state in which the product arrives on the customer’s doorstep. Self-delivery is always an option if customers are within reasonable proximity to the business. However, for those more geographically distant customers, a shipping service such as UPS or FedEx will be required to transport and deliver products. And while all shipped products will be moved via ground transportation during transit, depending on the geographic location of customers, some orders may require utilizing air transportation.

When choosing a shipping carrier, the factors below will influence the choice:

- Specific items being shipped (may differ according to product)
- Quantity of shipments
- Shipping schedule
- Geographic coverage
- Restrictions
- Value-added services (tracking, signature confirmation, guaranteed delivery time, return shipping, etc.)
- Reputation

A significant factor in choosing a shipping carrier is cost. Understand how shipping costs are calculated. Factors impacting the cost to ship packages include distance to destination (or zone), billable weight, and delivery speed. As carriers offer a number of service options, be sure to study the
options to choose the most economical for your needs. Companies that provide shipping and delivery services (such as UPS and FedEx) often have guidance/recommendations/best practices on their websites regarding considerations for shipping perishable products, such as dairy products (see the References and Resources section for some examples). In addition, utilize drivers and customer service representatives for assistance with questions.

**Budget Considerations**

Shipping perishable products brings with it a different set of concerns than shipping non-perishables which will incur alternate and possibly greater expenses, so it is important to accurately account for all costs. In researching packaging and transportation options, it will become clear that the cost for shipping direct to customers will be anything but negligible.

Shipping expenses will include:

- Packaging materials (boxes, coolants, labels, insulating material, etc.)
- Shipping labels
- Tape gun/dispenser
- Packing tape
- Packing slip, for inside the box
- Marketing materials

These are just the tangible expense items. Other expenses will include labor costs for packaging and possible transport to the delivery service (if they don’t pick up) and possible value-added, or extra, shipping fees (Saturday delivery, etc.).

Consider how to cover the additional expense resulting from product shipping. Will the price of the product include shipping expenses, or will a separate shipping fee be added? Note that an IRI survey found that delivery fees were a barrier to both trying online dairy purchasing as well as continued online dairy product purchasing (Midwest Dairy). When determining how to handle shipping expenses, consider the anticipated quantity of product that will be shipped, which specific products may be purchased online, time of year, customer expectations and reactions, and other factors.

**Managing Product Shipping**

Shipping products will be, for many small dairy processors, a new and additional piece to the business that will likely require adjustments to existing marketing and sales processes. Management of shipping begins with managing inventory (of both product and shipping supplies) which first requires an estimate of quantities of each product that will require shipping upon sale. This is accomplished through market research with an eye on seasonal changes in demand, such as the holidays when gift purchases and shipping needs increase. Additionally, unlike some other forms of direct-to-consumer sales such as farmers’ markets or an on-farm store, customers assume that products shown on an online store are available for purchase so link the e-commerce product inventory to the inventory management system or update availability as required, ensuring that customers are informed if a product is unavailable.

By having a handle on product shipping quantities and timing, the needed shipping supplies as covered previously in this article can be purchased. Discounts on bulk purchases of packaging supplies can be appealing and financially advantageous; make sure to have adequate and appropriate storage space.

Similar to the recommendation for trying different packaging materials and sending test shipments, test the processes for assembling orders for shipment. This will allow for optimal layout of the workroom and an understanding of the amount and timing of labor needed.

Finally, dairy processors will need to implement a detailed traceability program with the goal of knowing exactly what was sent out to every customer. Capture the address, shipping date, products, quantities, and lot codes or batch dates on the invoice. Provide customers receiving the product with the same information on the packing slip included with the product. Should a recall be issued, businesses must know how to reach all customers and maintain a record of what they received. Tools such as bar codes, color codes on packages, date codes can be useful. All food businesses should have a recall plan in place. (See Resources section for a link to FDA’s guidance on recalls.)

**When Issues Arise**

Proactively addressing common customer questions and concerns is necessary when shipping dairy products direct to customers. The resolution of any issues that may arise during the ordering, shipping, delivery process will impact the customer experience and whether they subsequently purchase and have a product shipped to them. Be prepared with resolutions for common issues such as incorrect orders or products arriving at incorrect or unacceptable temperatures. Decide whether to ask the customer to send a picture/description of the package/issue to assist in prevention with future shipping issues. Being able to quickly tell customers the plan for solving the problem will build their confidence and trust in the business.
Summary
As consumers continue to incorporate online purchasing of dairy products into their habits, providing consumers with a safe and quality shipping experience will be paramount to direct marketing dairy processors. Businesses must balance the requirements for safely shipping perishable products while providing a high-quality customer experience and controlling expenses. While circumstance may lead dairy processors to want to quickly offer product shipping, time should be taken to fully plan and test newly implemented shipping processes.

References and Resources
BigCommerce. How to Ship Perishable Products.
Centers for Disease Control and Prevention. Tips for Meal Kit and Food Delivery Safety.
Dairy Farmers of Wisconsin. How to Ship Cheese for the Holidays.
FedEx. Perishable Shipping Information.

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