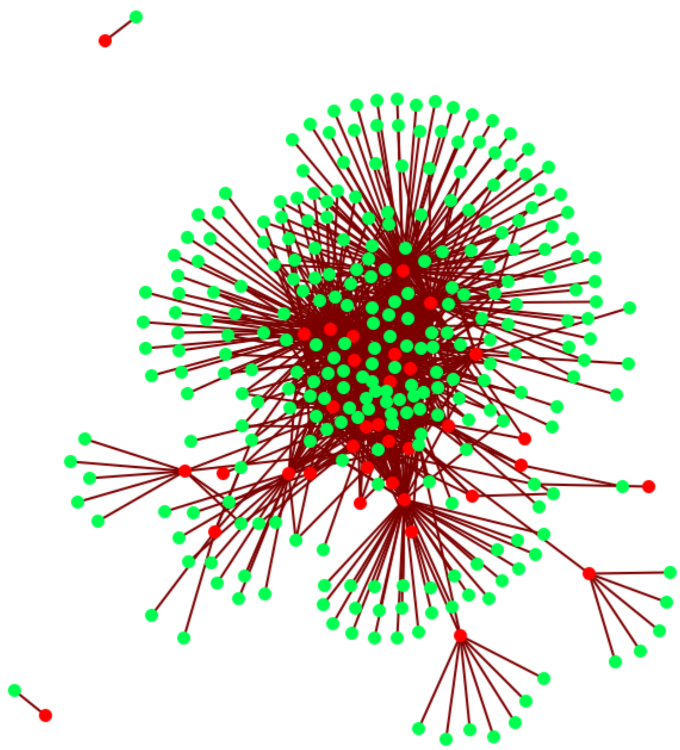
MAKERS & MONGERS

Exploring Social Networks in the Regional Supply Chain for Vermont Artisan Cheese



Prepared for: The Vermont Cheese Council

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I. Executive Summary

Three major themes emerged from the social network analysis of supply networks for Vermont artisan cheese: types of relationships, varieties of retail operation, and importance of distributors. The results indicate that the regional supply chain is a multiplex system stemming from a complex balance between a cheesemaker's goals and the needs of various retailers.

Relationships:

- The relationships between cheesemakers and retailers ranged from highly social and personal to distanced and business minded.
- The social network is clustered around several well-connected cheesemakers and retailers.
- The scale of production and number of years in business influences a cheesemaker's centrality in the social network.

Retail:

- The majority of Vermont cheesemakers sell to retailers both inside and outside of Vermont.
- Vermont cheesemakers rely on a diverse variety of retail venues – from ultra-local general stores to large national supermarket chains – across the region.
- Food cooperatives, primarily in Vermont, emerged as highly central in the social network.
- The consistent champions of Vermont cheese outside of Vermont appear to be small specialty retailers – either dedicated cheese shops or gourmet food stores.

Distributors:

- Distributors play crucial roles as intermediaries between cheesemakers and retailers.
- When distributors become involved in selling Vermont artisan cheese, cheesemaker-retailer relationships often resemble a *sales network* rather than a *social network*.

II. Background

Why do people like Vermont artisan cheese? What makes it unique, desirable, and good to eat? Previous research with consumers has demonstrated that social information related to where and how Vermont artisan cheese is made is important—not just for preference but for physiological sensory experience. This social information about the farm, cheesemaker, animals, and cheesemaking process is known as the *farm story* or *cheese story*.

Who tells the story and how is it told? For Vermont consumers, the story is relatively easily to come by, for example, by purchasing cheese directly from the producer at farmers' markets, eating a local cheese board at a farm-to-table restaurant, or having firsthand knowledge of what a farm looks like. Due to in-state market saturation, however, Vermont cheesemakers are increasingly encouraged to expand their supply chains to reach more urban, regional consumers. In these spatially extended marketplaces, retailers occupy a key intermediary position between producers and consumers. Indeed, focus groups with consumers of Vermont artisan cheese pointed to the importance of *cheesemongers*—defined in this research as highly specialized cheese retailers who do not just sell cheese but also source and promote it—in shaping their preference for Vermont artisan cheese. Yet, despite their importance from both a producer and consumer perspective, little is known about retailers, their specialized knowledge, and their relationships to others in the Vermont artisan cheese supply chain.

In the fall of 2013, the Taste of Place Working Group at the University of Vermont conducted a survey of Vermont artisan cheesemakers to better understand and explore their relationships with retailers in the region (defined as New England and New York). *Social network analysis* is a quantitative technique that allows us to visually map the network of relations between a group of actors—in this case, Vermont cheesemakers and regional retailers. Qualitative comments from cheesemakers, along with information on retailer and distributor websites, provided rich detail, depth, and nuance to our analysis. This report summarizes the main findings and discusses potential implications. A set of recommendations is also offered.

Methods

An online questionnaire was distributed to every licensed cheesemaker in Vermont (see Appendix A for a copy of the survey instrument). Thirty-five (35) Vermont cheesemakers participated in the survey (see Appendix B for a table summarizing demographic variables of cheesemakers). Participants were shown a list of retailers in the New England/New York region (compiled from an online database maintained by Culture Magazine, and supplemented by lists found on the Vermont Cheese Council's website) and told to identify those that had sold their cheese in the past year. They were then asked a set of questions about each retailer they identified. In addition, several demographic questions collected information about their cheesemaking business (for example, how long they have been licensed to make cheese in Vermont, what styles of cheese they make, how many employees they have, etc.). After the survey was complete, follow-up phone calls and e-mails were used to collect additional data on the intermediary role of distributors and their impact on the quality of relationships in the network.

III. Social Network Analysis

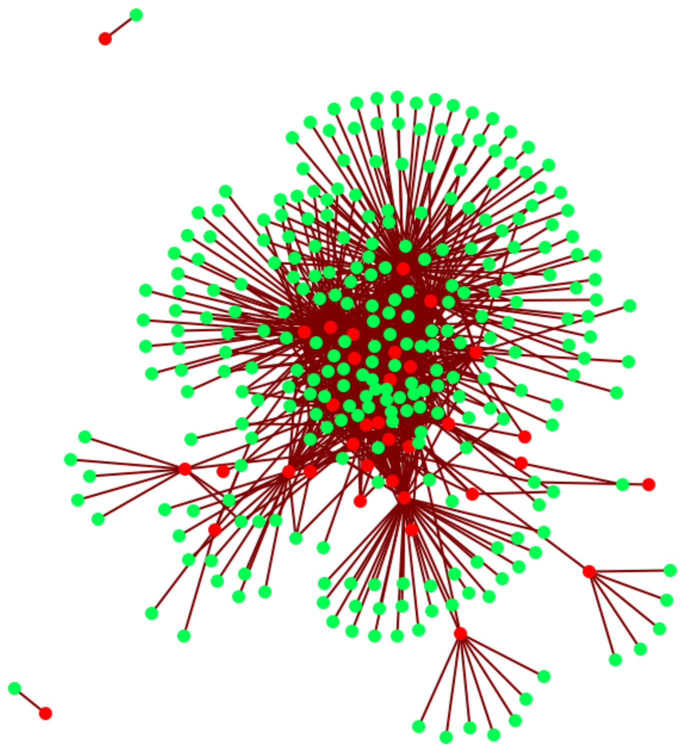

Figure 1. Network graph showing ties between Vermont cheesemakers (red; n = 35) and regional retailers (green; n = 300).

The 35 cheesemakers identified relationships with 300 retailers across the region. Figure 1 is a pictogram of the social network—known as a *network graph* or *map*—with red circles representing cheesemakers and green circles representing retailers. A line connecting a red and green circle (i.e., a tie) indicates that a relationship was identified by the cheesemaker. Those cheesemakers and retailers with many ties (i.e., more connected) are located in the center, while those with only one tie (i.e., less connected) are located on the periphery.

All 35 cheesemakers reported a connection to at least one retailer. The two "dyads" on the outer periphery represent cheesemakers who are connected to a lone, singly-connected retailer (i.e., not identified by any other cheesemaker). The network is clustered around several well-connected cheesemakers and retailers located in the center of the graph.

What do we know about these central actors? A basic descriptive measure commonly used in social network analysis is *centrality*. Centrality is simply a measure of the number of connections a given actor has. The following sub-sections highlight several key demographic trends.

This Cheesemaker Went to (Retail) Market

Table 1 displays a list of all cheesemakers in the network—each assigned a two-digit code for confidentiality—in descending order of their number of retailer ties. Exact rankings are not as important as general positioning (categories: high, medium-high, medium-low, and low centrality).

Table 1. *Cheesemakers (N = 35) Ranked by Centrality Score*

Rank	Cheesemaker Code	# of Ties	Category
1	35	125	HIGH
2	69	113	
3	46	85	
4	29	78	
5	23	70	
6	82	56	MEDIUM-HIGH
7	37	38	
8	83	32	
9	16	31	
10	51	25	
10	76	25	
11	81	23	
12	22	22	
12	63	22	
13	27	18	
13	59	18	
14	38	12	MEDIUM-LOW
14	41	12	
15	21	11	
16	13	10	
17	53	9	
17	61	9	
18	20	8	
19	48	6	LOW
19	68	6	
20	62	5	
21	19	4	
21	39	4	
22	64	3	
23	44	2	
23	71	2	
24	18	1	
24	32	1	
24	56	1	
24	78	1	

On average, Vermont cheesemakers were connected to 25 retailers across the region. The range was large: 10 of the 35 cheesemakers identified 5 or fewer retailers, while the top-most central cheesemaker identified 125.

Years in business and scale appear to be important factors related to cheesemakers' centrality. Statistical analysis confirmed a relationship between centrality score and number of years being licensed to make cheese ($r = .59$, $p < .001$), such that cheesemakers who have been in the business longer tend to have more connections to retailers in the region. This may be because it takes several years to become established and build up these relationships. Alternatively, it could be an indication of the time needed to acquire capital to increase one's scale of production. Those just starting out may begin at a smaller production scale due to constraints of economic capital or infrastructure, or as a strategy to minimize economic loss due to failure. Low production volumes reduce the likelihood of selling cheese to many retailers. Indeed, a strong positive correlation exists between a producers' reported pounds of cheese sold and centrality scores, $r = .771$, $p < .001$. Table 2 reports the results of these and other correlation analyses based on cheesemaker attributes.

Table 2. *Correlations Between Cheesemaker Attributes and Centrality Scores*

	Years	**Animals**	**Styles**	**Pounds**	**Sales**	**Employees**
Years licensed to make cheese	---					
Number of different types of animals	.087	---				
Number of styles of cheese	.059	.366*	---			
Pounds of cheese	.820**	.055	.367*	---		
Gross sales	.550**	.003	.521**	.896**	---	
Full-time employees	.554**	.026	.227	.663**	.667**	---
Centrality	.590**	.228	.535**	.771**	.773**	.807**

** $p < 0.01$ level

* $p < 0.05$ level

Note that, due to the self-report nature of the survey, centrality scores and rankings represent cheesemakers' *perceptions* of where their cheese is being sold in the region, and are not necessarily an accurate reflection of sales, geographic reach, or relative importance. In many cases, they are probably underestimates. For instance, Cheesemaker 78 reported selling only at their on-site retail store but later told me that they also use a distributor, who "picks up anything that is left." While they had a list of stores that the distributor sells to—and, therefore, stores their cheese *might* be sold in—they did not actually know which retailers order their cheese from the distributor. Thus, it is important to recognize that cheesemakers may be connected to additional retailers in the region, yet, because they are not aware of which ones, they cannot perceive or report a relationship. When this is the case, it is impossible to tell how many stores a cheesemaker is actually present in. While certainly a limitation to the study, it was also a key finding with important implications that will be discussed in a later section.

State Matters

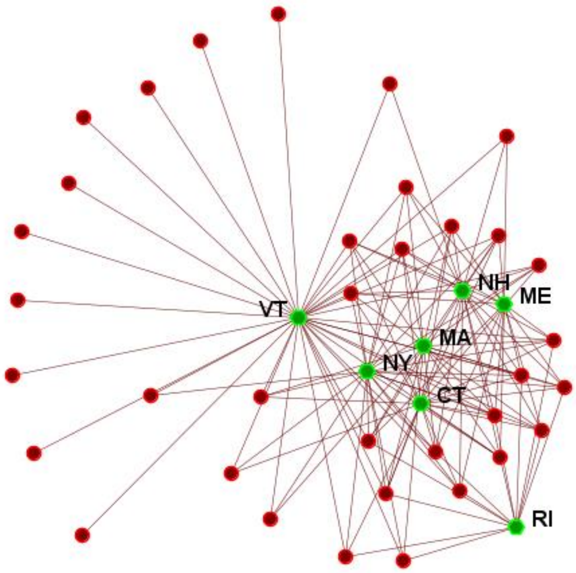

Figure 2. Links between cheesemakers (red circles) and state nodes (green circles), which represent retailers in CT, MA, ME, NH, NY, RI, and VT

Using data on retailer locations we compared Vermont cheesemakers' connections to retailers across individual states. The resulting network map (see Figure 2) allowed us to visualize whether Vermont cheesemakers are selling cheese only in Vermont or if they have expanded into regional markets. The majority of cheesemakers (*n* = 25; 71%) are connected to retailers both in Vermont and in other states, while the rest (*n* = 10; 29%) are connected only to retailers in Vermont.

Scale of production appears to be an important factor in understanding which cheesemakers sell to retailers in several states. Scale-related demographic variables, such as number of employees, production volume (i.e., pounds of cheese), and total sales, were found to be related to the number of states a cheesemaker was connected to. For instance, cheesemakers that employ several full-time employees (9 or more) had ties to retailers in all seven states. Moreover, cheesemakers that reported larger volumes and gross sales tended to have ties to six or seven states.

As a group, Vermont retailers had the most connections with 285, followed by Massachusetts (194) and New York (182), which makes sense given the large urban markets in Boston and New York City. New Hampshire—Vermont's other neighboring state—had 86 cheesemaker ties, while retailers a bit more spatially removed in Connecticut and Maine had 63 and 53, respectively. Rhode Island was the least connected state in the region with just 27 ties.

Figure 2 also shows a primary core in the center made up of Massachusetts (MA), Connecticut (CT), and New York (NY), which suggests that these three states are more mutually connected than the others. In other words, if a Vermont cheesemaker has retailer connections in one of these states, it is likely that they also have retailer connections in the other two.

Retailer Characteristics

In total, the survey identified 300 retailers that sell Vermont artisan cheese in the New England/New York region. In order to better understand the characteristics of these retailers, we categorized them by store location and created a store typology using publicly available information. Note that store type categories are not mutually exclusive; for instance, many general stores are also independent groceries, and a chain food store could be further categorized as a natural/health or gourmet food store. For cases where a retailer fit into multiple categories, a consistent set of procedures was followed. Moreover, several non-traditional retailers emerged through the open text option, "Other," on the survey, indicating that there is some blurriness of retailer types and categories in the minds of some Vermont cheesemakers. These included farm stands, farm stores and CSAs, as well as restaurants, resorts, breweries, and online retailers.

In the end, we used the following categories: food co-op, natural/health food store, gourmet food/cheese shop, independent grocery store, general store, convenience store, chain supermarket (regional), chain supermarket (national), restaurant, farm store/farm stand/CSA, and other. Table 3 shows the frequency of each store type by state, as well as frequency totals and percentages across store types and states.

Table 3. *Frequency of Retailers By Location (State) and Store Type*

Store type	**CT**	**MA**	**ME**	**NH**	**NY**	**RI**	**VT**	**Total**	**%**
Co-op	3	4	2	5	4	1	10	**29**	**9.7**
Natural/health	1	3	1	0	2	1	4	**12**	**4.0**
Gourmet/cheese	11	30	14	12	54	6	16	**143**	**47.7**
Independent grocery	3	9	4	3	6	1	9	**35**	**11.7**
General store	1	0	0	2	0	0	10	**13**	**4.3**
Convenience store	0	0	0	0	0	0	1	**1**	**0.3**
Chain (regional)	4	3	0	0	7	1	1	**16**	**5.3**
Chain (national)	1	1	1	0	1	1	0	**5**	**1.7**
Restaurant	0	3	6	3	3	0	4	**19**	**6.3**
Farm store/farm stand/CSA	1	5	1	0	3	2	5	**17**	**5.7**
Other	0	0	0	1	1	0	8	**10**	**3.3**
Total	**25**	**58**	**29**	**26**	**81**	**13**	**68**	**300**	
%	**8.3**	**19.3**	**9.7**	**8.7**	**27.0**	**4.3**	**22.7**		

Note. "Other" = online retailer, brewery, winery, hotel, resort, tourist attraction

Table 4, below, displays the top-most central retailers—each assigned a three-digit code for confidentiality—in descending order of their number of ties to cheesemakers. Four clear front-runners emerged, each connected to at least 20 Vermont cheesemakers. For the top-most central retailer (RET-160) close to two-thirds (65.7%; n = 23) of cheesemakers reported having their cheese sold there. However, on average, retailers had only 3 connections (M = 3.0; SD = 3.8), and almost half of retailers (n = 140) were identified by just one cheesemaker. Emergent patterns based on location of the retailer and store type (also included in Table 4) are highlighted next.

Table 4. *Retailers (N = 300) Ranked by Centrality*

Rank	Retailer Code	# of Ties	Location	Store Type
1	RET-160	23	VT	Co-op
2	RET-163	22	VT	Natural/health
3	RET-156	21	VT	Co-op
4	RET-164	20	VT	Co-op
5	RET-165	16	VT	Co-op
5	RET-173	16	VT	Independent
5	RET-79	16	NH	Co-op
6	RET-171	15	VT	Co-op
7	RET-167	14	VT	Co-op
8	RET-136	13	NY	Gourmet/cheese
9	RET-170	12	VT	Independent
10	RET-162	11	VT	Gourmet/cheese
10	RET-44	11	MA	Gourmet/cheese
11	RET-129	10	NY	Gourmet/cheese
11	RET-148	10	RI	Gourmet/cheese
11	RET-172	10	VT	Gourmet/cheese
11	RET-61	10	MA	Gourmet/cheese
11	RET-68	10	MA	Chain (national)

Note. Only includes retailers with 10 or more in-links.

Vermont Retailers: Not Your Average Cheese Shop

A couple of interesting patterns emerge from Table 4. First, out of the ten most central retailers, eight are located in Vermont, while the remaining two are located just over the border in New Hampshire. As Vermont retailers make up only 22.7% of the entire sample, this high frequency in the top ten is worth noting, but perhaps unsurprising given Vermont's strong local food movement and culture.

Moreover, of the ten most central retailers, eight (six in Vermont, two in New Hampshire) are co-operative food stores. The fact that co-ops comprised 80% of the top ten is striking when you consider that they made up less than 10% of the entire sample. Looking back to Table 3 suggests that food co-ops appear to be especially—and uniquely—important in Vermont. Perhaps it is something about the co-operative food model—a worker- or customer-owned business that is typically committed to local farms and food producers, building community, and environmental sustainability—that positions it well to support Vermont cheese. It may also be related to proximity; Cheesemaker 16 (31 ties) reported selling as much cheese at one Vermont co-op—RET-160, the top-most central retailer—as in all of their other stores in the North-Atlantic region combined, because a goal of their business is to "sell as close to our property" as possible.

A relatively high prevalence of independent groceries—primarily in Vermont and Massachusetts—in the network should also be noted, although they did not tend to be as central as food co-ops. Stores in this category ranged from more conventional-style grocery stores that have been in families for multiple generations to more alternative "markets" emphasizing fresh local produce, and specialty regional food products. The latter also sometimes doubled as a bakery or deli.

Finally, general stores in Vermont can be observed playing a small but noteworthy role for cheesemakers. Although they made up only 4.3% of the sample, 76.9% were located in Vermont. These retailers tend to be smaller "country stores" that are located in rural areas and offer a variety of Vermont-made food and non-food products. While they are by no means central actors in the network, general stores may carry other benefits for producers. For instance, their close spatial proximity and small-scale nature may allow them to be used as a stepping stone into bigger wholesale/retail markets. For instance, Cheesemaker 56, who has been licensed to make cheese for just one year, reported only being present at the general store in their small village (population: 237), but noted that they may be "going retail" in the next year. Additionally, selling artisanal cheeses in these ultra-local stores may function to increase access for more rural consumers, as well as to promote and communicate a "taste of place" to locals and tourists alike.

The Urban Marketplace: From Gourmet Food Stores to Chain Supermarkets

Gourmet food stores, including more specialized cheese shops, comprise almost a half (47.7%) of all retailers in the network. This appears to be especially true outside of Vermont, in or near large, urban centers. For example, RET-136, ranked eighth with 13 ties, is located in New York City; RET-44, ranked tenth with 11 ties, is proximate to Boston; and RET-148, ranked eleventh with 10 ties, is in Providence, RI. Based on observations at one of these stores and background research on the others, these specialty stores appear to see themselves as champions of the American artisanal cheese movement, making a point to highlight domestic and local producers and their stories. For instance, RET-136 is dedicated to American farmstead cheese with a particular focus on cheeses from the Northeastern U.S., and the co-owners “pride themselves on selecting cheeses from small producers who farm sustainably with respect for their land and animals” (website materials). Although this type of store tends to be small, these highly central retailers appear to be powerful partners for Vermont artisan cheesemakers by building awareness and preference among urban consumers across the region.

Chain supermarkets are another interesting category to consider, as they carry the potential to reach large volumes of consumers. Retailers were characterized as chains if they had three or more locations within a given state; instead of counting each location as a separate retailer, we collapsed all locations within a given state into a single entry (e.g., “Wegman’s, multiple locations, New York”). The only chain retailer categorized as high centrality with 10 cheesemaker connections was RET-68, representing the numerous Massachusetts locations of a national chain focused on organic and “natural” foods. This same chain had 9 connections to its Maine location, 5 in New York, 7 in Rhode Island, and 1 in Connecticut. It is likely that a cheesemaker who sells through this chain is present in several store locations and more than one state. Thus, while chain retailers appear to be playing a role for some Vermont cheesemakers in regional markets, the majority of producers are probably not selling through them.

Although the survey results suggest that chain retailers in Vermont do not play a role in selling Vermont artisan cheese, this may not reflect reality. Observation at three separate regional chain supermarkets located within a one-mile radius in South Burlington, VT found cheeses made by five producers in this study. As these connections did not emerge through the survey, it suggests that this cheese gets to these chains primarily through distributors. While this underscores a limitation of the study, it also reinforces an important finding, which is that the use of distributors in the Vermont artisan cheese network often leads to a disconnect between cheesemakers’ knowledge of where their cheese is sold and where it is actually being sold. When there is no knowledge of a connection, there is likely no social relationship. Even when there is knowledge, cheesemakers’ relationships with chain stores may simply be of a more instrumental nature. For example, Cheesemaker 16, who identified a diverse range of retailer types and locations, suggested that the *type* of relationships that they have with big chain stores is different from other retailers: “Our relationship with [national chain retailer] is congenial but more of a business relationship.” The next section delves deeper into this idea of relationship quality.

IV. Quality in Cheesemaker-Retailer Relationships

Centrality can only tell us about *quantity* of cheesemakers’ relationships with retailers. In order to gauge *quality*, we asked cheesemakers a set of in-depth questions about each retailer they identified on the survey. Only 14 cheesemakers filled out this section completely (i.e., for all of their relationships), which was likely caused by a high level of cognitive burden, time, and survey fatigue. Unsurprisingly, those cheesemakers with many retailer connections, who also tended to be of a larger scale, were less likely to complete this section. An additional 15 cheesemakers filled out questions for at least one of their relationships. By making our unit of analysis the cheesemaker-retailer relationship—rather than an individual cheesemaker or retailer—we were able to retain these partial responses. In total, we analyzed data for 124 relationships. Table 5 below displays summary statistics for each of these questions. The following section highlights several key findings.

Table 5. *Frequency of Characteristics of Cheesemaker-Retailer Relationships (N = 124)*

Variable	Frequency
Distributor? (*n* = 124)	50.0%
How long have you sold there? (*n* = 119)	
< 1 year	20.2%
1-2 years	10.9%
3-4 years	13.4%
5+ years	55.5%
How did you initially begin selling there? (*n* = 124)	
By sending samples	21.0%
Because of a distributor	37.9%
Because of a cheesemonger	22.6%
Customer demand	15.3%
Other	22.6%
Share information? (*n* = 114)	58.8%
Information about products (n = 67)	92.5%
Information about farm/dairy	73.1%
Information about production conditions	49.3%
Other	6.0%
How often correspond? (*n* = 89)	
Once per week	18.0%
Once per month	25.8%
Once per quarter	15.7%
Once every 6 months	5.6%
Once per year	32.6%
Never	2.2%
Met cheesemonger? (*n* = 119)	69.7%
How many times did you visit retailer? (*n* = 117)	
Never this past year	49.6%
Never this past year but once in past 5 years	16.2%
Once or twice this past year	15.4%
3-4 times this past year	6.0%
5+ times this past year	12.8%
How many times did retailer visit you? (*n* = 115)	
Never this past year	73.0%
Never this past year but once in past 5 years	13.9%
Once or twice this past year	11.3%
3-4 times this past year	0.0%
5+ times this past year	1.7%

Highlights about the Quality of Cheesemaker-Retailer Relationships

- Exactly half (50%) of cheesemaker-retailer relationships involved a distributor. Moreover, distributors emerged as the most frequent reason for why relationships were formed in the first place; cheesemakers began selling at a retail store "because of a distributor" in 37.9% of cases, compared to 22.6% "because of a cheesemonger." This confirms the importance of distributors to Vermont artisan cheesemakers in the regional supply network.

- Over half (55.5%) of the relationships analyzed were well-established (maintained for over 5 years), which can be interpreted as an indication of relationship strength, in that it has endured over an extended period of time. New relationships (i.e., established for less than a year) were second most frequent (20.2%), perhaps an indication that cheesemakers have started to respond to the need to pursue new regional markets.

- Sharing information is one indicator of social relationships. *Information-sharing* occurred in over half (58.8%) of the cheesemaker-retailer relationships. Among these 67 relationships, sharing information about products was most common (92.5%), followed by information about the farm/dairy (73.1%), and information about the production conditions (49.3%).

- Regular communication is another indicator of relationship quality and strength. Given the highly variable nature of artisan cheese from a sensory standpoint, it might be expected that communication would occur between producers and retailers on at least a quarterly (i.e., seasonal) basis, if not more frequently due to batch-to-batch variation. In a quarter (25.8%) of the relationships, correspondence by phone or e-mail occurred on a monthly basis. An additional 18% of relationships involved weekly correspondence. Yet, the most frequent response—about a third (32.6%) of cases—was "once per year," suggesting that there may be very little ongoing communication happening in many cheesemaker-retailer relationships.

- Anonymous, impersonal, and faceless relationships between actors in the supply chain are frequently cited as characteristic of a highly complex and distanced food system. *Ever Met* was a yes or no question designed to give us a basic measure of whether Vermont artisan cheesemakers have more personal relationships with the people who sell their cheese. In over two-thirds (69.7%) of relationships, cheesemakers had met a cheesemonger who worked at a particular retailer face-to-face.

- *Visits To* and *Visits By* are measures of frequency within the last year. Visits to retailers (by cheesemakers) happened more frequently in the last year than visits by cheesemongers (to cheesemakers and the place of production). Note that it was possible for respondents to say that they had never met a cheesemonger from a particular retailer but that visits to that retailer had occurred. This may be because the cheesemaker went to the store for another reason (e.g., food shopping). Conversely, respondents may have met a cheesemonger without any formal visits having taken place. For example, two cheesemakers reported meeting a cheesemonger at the Vermont Cheese Festival, and one recalled that a cheesemonger had "chatted with him" at his local farmers' market. Other qualitative comments from cheesemakers related to these questions include: *"They visited the farm* *this summer"*; *"I visited the store last winter"*; *"It's a long haul to get to Montpelier, but if we find ourselves in the area, we stop in"*; *"I personally (cheesemaker) do not have contact (other than when they came here) but our contracted sales guy goes weekly"*; and *"I don't know these folks personally"*.

- Qualitative comments from cheesemakers explaining relationships suggest a distinction between those of a highly *social* or personal nature and those primarily about *sales* or business. We can think of this in terms of a continuum, where a given relationship falls more towards one end or the other, but where there is typically much gray area in between. An image of such a continuum, along with quotations illustrating both types of relationships, is provided below in Figure 3.

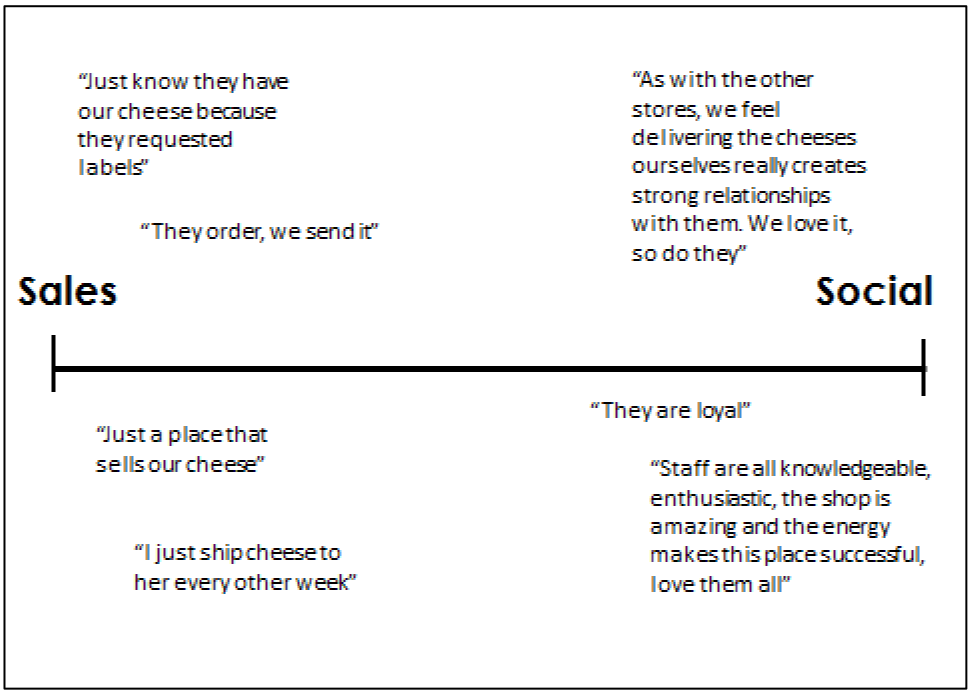

Figure 3. Continuum of social vs. sales relationships

- Cheesemakers may not want, or have time, to maintain strong relationships with their producers. One cheesemaker wrote that they had little interest in where their cheeses are distributed "due to the 'no employees' and 'real dairy farm' attributes of our business." In this way, using distributors can be seen as a benefit because it creates more time for production activities, rather than shipping and sales.

- While clearly providing some important logistical benefits for cheesemakers, distributors may disturb the flow of information between cheesemakers and retailers. For example, Cheesemaker 21 said of a specialty cheese store near Burlington, VT: "They buy cheese from the distributor, therefore we have no information about [percent] of sales." In addition to sales information, the flow of social information (i.e., the story) may also be impeded.

Distributor or Direct?: Follow-Up Questions

As hinted at by the previous comments, the quality of cheesemakers' relationships to retailers may be related to whether they sell directly to them or go through a distributor. Cheesemakers were asked two questions related to this through follow-up phone calls and e-mails after the survey was complete. We were unable to reach two cheesemakers, leaving us with a slightly smaller sample (N = 33). The first question asked was: *Do you sell directly to any retail stores (i.e., not go through a distributor)? If yes, which one(s)?*

Figure 4 shows the resultant network of cheesemakers and retailers connected by direct ties, with red circles representing cheesemakers (n = 28) and green circles representing retailers (n = 129). As you can see on the periphery, nearly half of cheesemakers (46%) identified just one, two, or three retailers that they sell directly to. A single isolate node—a cheesemaker that does not have any direct ties to retailers—should also be noted. Only four cheesemakers (14%) named more than ten direct retail links. On average, cheesemakers had 7 direct retail ties (M = 6.64, SD = 11.32). The cheesemaker with the most direct retail ties had 58. Only one cheesemaker had no direct retail ties, although they still sell direct to some restaurants—"the ones from the beginning"—as a way to continue those early relationships.

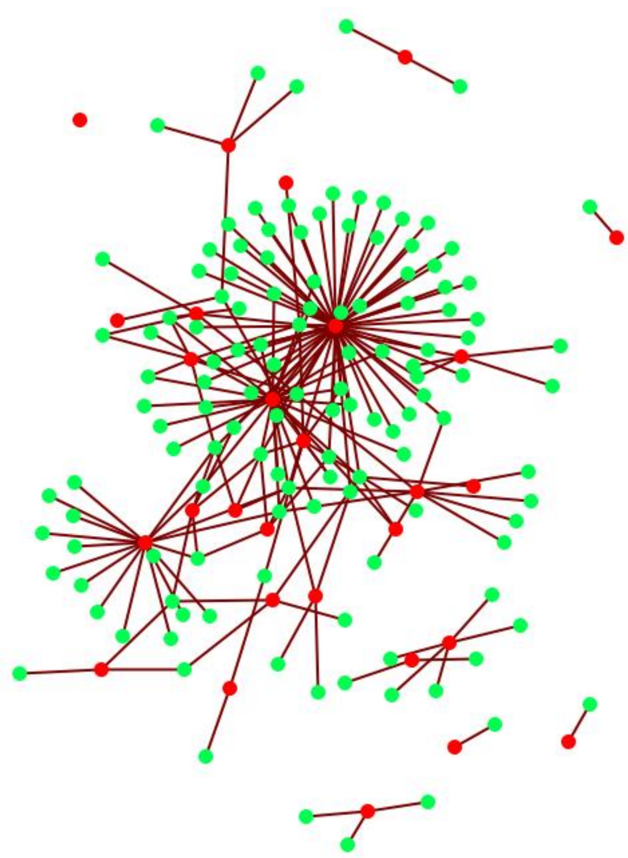

Figure 4. Network map showing direct ties (i.e., no distributor) between cheesemakers (red; n = 28) and retailers (green; n = 129)

Table 6 displays information for the top-most central retailers, including their number of direct ties to cheesemakers, as well as their location and store type. The retailer with the most direct ties to cheesemakers had 8, while the vast majority (90%) had 1 or 2 (M =1.44, SD = 1.12). If a retailer was not identified by a cheesemaker as being a direct tie (i.e., 0 ties), they were not included in the analysis. Note that there is considerable overlap between retailers at the top for centrality in this network and those who came in at the top for centrality in the original survey network. This makes sense given that survey responses represented cheesemakers' overall awareness of ties, and therefore likely incorporated some effect of direct ties.

Table 6. *Retailers (N= 129), Direct Ties, Ranked by Centrality Score*

Rank	Retailer Code	Centrality Score	# of Ties	Location	Store Type
1	RET-163	0.286	8	VT	Natural/health
2	RET-160	0.214	6	VT	Co-op
2	RET-44	0.214	6	MA	Gourmet/cheese
4	RET-156	0.179	5	VT	Co-op
4	RET-165	0.179	5	VT	Co-op
5	RET-136	0.143	4	NY	Gourmet/cheese
5	RET-267	0.143	4	VT	Independent
6	RET-162	0.107	3	VT	Gourmet/cheese
6	RET-170	0.107	3	VT	Independent
6	RET-171	0.107	3	VT	Co-op
6	RET-238	0.107	3	NY	Natural/health
6	RET-253	0.107	3	VT	Gourmet/cheese
6	RET-89	0.107	3	NY	Gourmet/cheese

Note. Includes only retailers with 3 or more ties.

We can also observe a disproportionate sampling of Vermont retailers (69.2%) at the top, which suggests the importance of geographic proximity to the establishment and maintenance of direct relationships between cheesemongers and retailers. This may be because it increases the ability of cheesemakers to physically go to a store, or the ability of cheesemongers to go to the farm. For instance, Cheesemaker 64 commented about one Vermont co-op that they sell directly to: *"Jon came to pick up the cheese for his past order."* In addition, Cheesemaker 19, a husband and wife team, pointed to the social benefits of proximity to forming relationships with retailers in one of their open-text responses: *"As with the other Stores, we feel delivering the cheeses ourselves really creates strong relationships with them. We love it, so do they."*

The importance of proximity makes sense given the obstacles encountered by cheesemakers who coordinate and arrange their own shipping to retail stores. For instance, one cheesemaker, who primarily goes through distributors, vehemently emphasized how expensive and time-consuming it is to ship cheese directly, saying: “To wrap up individual orders is inefficient.” Yet, the fact that she also sells directly to one gourmet food store in Connecticut suggests that proximity is not the only factor in cheesemakers’ decision to sell direct. Indeed, another cheesemaker, Cheesemaker 23, gave me a list of eight direct retail ties located around the country, with six located in the New England/New York region.

Six cheesemakers reported selling only direct to retailers (i.e., no distributors). Scale and proximity appear to be important factors. For example, Cheesemaker 64 sells only direct—to three nearby stores in Vermont—saying: “We do not use a distributor at all. We drop the cheese off at the store ourselves.” Cheesemaker 48 and Cheesemaker 39 each sell directly to their four retailers, all of which are located in Chittenden County, the most populous county in Vermont. The one exception, Cheesemaker 13, sells directly to all eight of its retail connections, which comprise a range of local (same town), in-state, and out-of-state stores, indicating that there are other factors at play.

While we cannot establish a reliable pattern with regard to either proximity or scale to predict direct retail ties, a few trends emerged regarding store type. First, co-operative food stores in Vermont were disproportionately identified as a direct link during follow-up. A possible reason for this is that co-ops have the infrastructure and human resources to manage direct ties. It may also have to do with the mission and values upon which many food co-ops are built, such as bringing consumers closer to their food source and community engagement.

Also of note, two gourmet food/cheese shops near Boston and New York City, RET-44 and RET-136 respectively, emerged as frequently identified direct ties. For instance, Cheesemaker 63 said: “For [RET-44], [name of cheesemonger] comes up and picks it up himself.” Other qualitative comments suggest that it may have to do with their unique dual role as a retailer *and* supplier/distributor. For instance, highly-central Cheesemaker 69 explained: “[RET-44] is the only retailer in this region (or anywhere, actually) that we sell to directly. But they’re also a wholesaler to restaurants so they buy significantly more volume than pretty much any other cheese shop could.” This notion that RET-44 and RET-136 play a role beyond that of a normal retailer will be discussed in more detail later.

“The Rabbit Hole of Distribution”

In order to understand the relationships between cheesemakers and retailers, we must also have some understanding of distributors’ role in the network. A sales employee and key informant at Cheesemaker 69 wrote in an e-mail: *“More cheesemakers than not work with distributors to get their cheese to retailers … not too many cheesemakers know which retailers have which cheeses in stock at any given time”* and referred to this complexity as the “rabbit hole of distribution.” Indeed, as was mentioned previously, a few cheesemakers wrote to me that they used a distributor and, therefore, did not know precisely which retail outlets their cheese was being sold in. In order to better account for this additional layer of complexity, we asked cheesemakers a second question during follow-up: *Do you use any distributors to get your cheese to retail stores in New England and New York? If yes, which one(s)?*

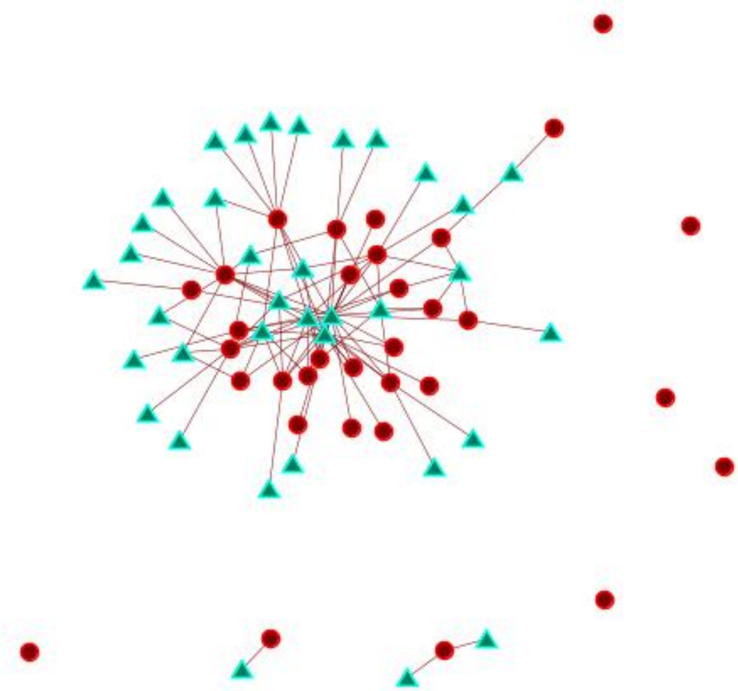

Figure 5. Network map showing connections between cheesemakers (red; *N* = 33) and distributors (blue; *N* = 36)

Figure 5 illustrates the resultant cheesemaker-distributor network, with red circles representing cheesemakers (*N* = 33) and blue triangles representing distributors (*N* = 36). There are two disconnected networks—a dyad and a triad—as well as several isolates on the periphery, indicating that six cheesemakers (18.2%) do not use any distributors. Seven (21.2%) cheesemakers use 1 distributor, four (12.2%) cheesemakers use 2, and six (18.2%) cheesemakers use 3. Almost a third of cheesemakers (*n* = 10; 30.2%) use 4 or more distributors. The average was 3 (*M* = 3.12; *SD* = 3.06).

Table 7. *Attributes of Top-Most Central Cheesemakers in Distributor Network*

Code	Dist. Ties	Total Links	# of Years	# of Styles	Sales	Pounds	Employees
35	12	125	120	5	$5,000,000	1,200,000	47
29	10	78	20	4	$650,000	200,000	19
76	9	25	10	2	-	-	47
69	8	113	10	8	$6,000,000	600,000	32
16	6	31	32	1	-	150,000	16
46	6	85	30	2	-	-	44
83	6	32	4	4	-	100,000	7

Note. “-” = no information provided or information thought to be erroneous; “Dist. Ties” = total number of distributor ties; “Total Links” = total number of retailer links (as reported on the survey); “# of years” = number of years as a licensed cheesemaker in VT; “# of styles” = number of different styles of cheese produced; “Sales” = gross annual sales last year; “Pounds” = volume of cheese produced last year; “Employees” = number of full-time, part-time, and seasonal employees

Table 7 displays the top-most central cheesemakers (those with 6 or more distributor ties), along with several demographic variables. Common attributes among the highest ranking cheesemakers include being in the business for a relatively long time (more than 10 years), having relatively high volume and sales, and having several employees.

It is worthwhile to note that the top-most central cheesemakers in the distributor network are also highly central in the original cheesemaker-retailer network. The fact that we see the same cheesemakers as generally high in centrality in both networks suggests a positive correlation between a cheesemaker's total number of retailer links and their number of distributors. Indeed, a correlation analysis indicates that there is a significant and strong positive relationship between these two variables ($r = .821$, $p < .001$). This also suggests that it is possible for cheesemakers to use distributors and still maintain some awareness of where their cheese is going.

With regard to distributors' centrality in the network, the majority—almost two-thirds (63.9%; $n = 23$)—of distributors were connected to only 1 cheesemaker, while a single distributor was identified by 22 cheesemakers. The average number of cheesemaker connections was just under 3 ($M = 2.86$, $SD = 4.19$). Table 8 below displays the top-most central distributors (those with more than 4 cheesemaker ties), along with contextual information gleaned from their websites, such as location, distribution region, type of customers, type of products, and the company's stated emphasis.

Three distributors stand out as central, with more than 10 links each (illustrated on the graph by the tight cluster of blue triangles in the center). Two-thirds of cheesemakers (66.7%) use DIST-25 (22 ties); over one-third (39.4%) use DIST-9 (13 ties); and one-third (33.3%) use DIST-29 (11 ties). Both DIST-25 and DIST-9 operate out of Vermont, whereas DIST-29 is based out of the Boston area, but all three companies distribute across the New England/New York region.

Another common factor among these top-most central distributors appears to be a specific focus on, and commitment, to artisan cheese, and strong relationships with cheesemakers in the region. For instance, DIST-25's website highlights their "partnerships with New England cheesemakers," saying: *"We are especially proud to be in an area where so many talented and exceptional cheesemakers reside and practice their art. We are delighted to distribute these local artisan dairies."* Their website also features a list of "local" cheesemakers they work with, which includes several of the Vermont producers in this study. Likewise, the website of DIST-9 claims that they have *"developed great relationships with artisanal cheese makers in Vermont, New Hampshire and Massachusetts,"* and *"are continuously adding new local artisan cheeses to further expand our already extensive list of regional cheese."* Thus, there appears to be a "sweet spot" for Vermont artisan cheesemakers when it comes to distributors; regional with an emphasis on cheese is key.

Table 8. *Characteristics of Top-Most Central Distributors (N = 36)*

Code	# of Ties	Location	Distribution region	Customers	Products	Stated emphasis
DIST-25	22	White River Junction, VT	VT, NH, ME, MA, NY	Restaurants, food co-ops, independent grocers, and specialty food stores	Artisan cheese, oil and vinegar, preserves, meat, fish & poultry, grains, beans, herbs & spices; no produce	Fine specialty foods from around the world
DIST-9	13	North Springfield, VT	VT, NH, MA, NY	Restaurants, institutions, retail stores	Produce, fresh seafood, artisan cheese, meats, dairy, dry goods	Local, all-natural foods; fresh produce
DIST-29	11	Lynn, MA	New England and New York	Independent retailers, specialty food shops, farm stands, supermarket chains	Cheese, specialty meats, pates & foie gras, pasta, specialty grocery items, chocolates, fruit preserves, rice, polenta, condiments & sauces, honey, salts, spices, antipasti, truffles; dried mushrooms	Specialty cheeses and fine foods from around the world
DIST-13	5	Brooklyn, NY	NYC metropolitan area	"New York's finest mongers"	Cheese (American & European), charcuterie, and accompaniments	"smaller producer cheeses"; "cheeses from the best small producers who seek to be on NYC cheese plates"
DIST-28	5	Brooklyn, NY	--	Restaurants, retail shops	Cheeses and dairy products	"Purveyors of fine American farmstead cheese"
DIST-33	5	White River Junction & Waterbury, VT	VT, NH	Restaurants, retailers	Fresh fruits and vegetables, cheese, meats, dairy/eggs	Local first; fresh, seasonal produce

Note. Only includes distributors with more than 4 ties. "--" = information could not be located.

Direct Retail vs. Distributors: A Complex Calculus

The vast majority—almost three-quarters (74.3%)—of cheesemakers in the sample use a combination of distributors and direct sales to get their cheese to retailers. Below is a graph that shows each cheesemaker's number of distributors in relation to their number of retailers. While we might expect to see a negative correlation between the number of distributors and direct links—in that the more distributors one uses, the lower number of direct links one has—we found a much more complex relationship.

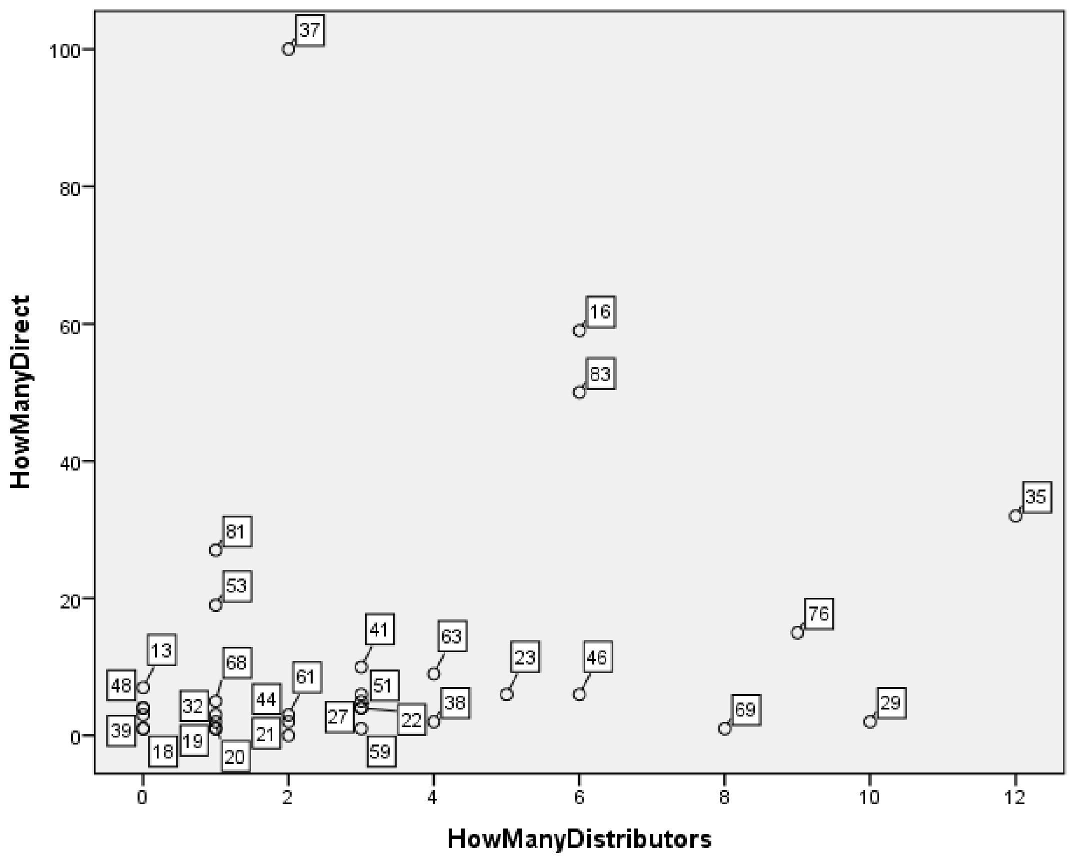

Figure #. Scatter plot showing cheesemakers' number of direct ties (x-axis) versus their number of distributor ties (y-axis). *N* = 33.

The majority of cheesemakers are located in the bottom-left corner of the graph, indicating a smaller number of both distributor ties and direct retail ties. Moving up along the y-axis, we can see only a couple of cheesemakers who use few distributors and have a high number of direct links, suggesting that these are special cases. According to Cheesemaker 81, who uses just one distributor/online retailer based out of Connecticut, their relatively high number of direct ties (27) is purposeful and seems to be a matter of pride: *"90+ % to retail is direct … Bottom line is we sell direct without the 'help' of distributors."* A more extreme case is Cheesemaker 37, located in the top-left quadrant, who declined to identify retailer names but reported 100 direct ties and 2 distributors.

Conversely, in the bottom-right quadrant with many distributors and few direct retail links, cheesemakers appear to rely heavily on distributors to move their cheese to retail, and perhaps do not have the infrastructure or desire to deal with direct sales and shipping. For example, the Sales Manager at Cheesemaker 29, with 10 distributor ties, told me that their model is "mostly distributors" with the exception of two local retail outlets—a brewery and a general store—both under 30 minutes away by car. Yet, it does not appear to be as simple as a story of proximity. Some cheesemakers reported selling directly to retailers, not by choice, but because their distributors do not, or will not, go there. For instance, Cheesemaker 76 (9 distributors, 15 direct retail ties) told me that "every now and then" they sell directly or do direct delivery, especially if it is in a location where they do not have a "strong distributor presence." She cited the case of New York City; because they lack a strong distributor there, they drive their own truck down once a week. Apart from that, most of their business—including their local store—goes through distributors.

In contrast to the obstacle perceived by Cheesemaker 76 regarding distributors not physically going to stores they sell to, Cheesemaker 16 (6 distributors, 59 direct retail ties) discussed the opposite situation, in which a particular retailer will *only* sell your cheese if you work with a particular distributor: *"We sell to so many places that go through a distributor. Sometimes we'll identify a retailer we want to work with [and] then ask, 'Who do you use for a distributor?'"* She also noted that, when there is the option of whether to sell direct or use a distributor, there is a calculus involved that has to do with shipping time and format: *"If we can get to 1 or 2 day UPS ground—any format smaller than a 40-pound block—then we'll ship it."* However, if they need to transport multiple 40-pound blocks, or it takes more than 1 or 2 days with UPS ground, then they will opt to use a distributor to truck it or sell it. Clearly, logistical considerations should not be overlooked in understanding why a cheesemaker sells direct or chooses to go through a distributor, and it can help us understand why many cheesemakers utilize both strategies.

A final notable case to consider is that of Cheesemaker 35—located at the extreme right of the graph—which ranked first in overall centrality (125 links), and has the highest number of distributor ties (12) and a relatively high number (50) of direct retail ties. This hybrid strategy is not necessarily by design or by choice. A Sales Manager described their current situation in an e-mail: *"We do ship direct to some Retailers and a few restaurants, unfortunately. We'd prefer not to but it's hard to move folks to distributors[,] especially some of these folks [who] have been buying from us for a long time."* Given that they have been in business longer than any other cheesemaker in Vermont, this suggests that increasing scale over time may result in tensions between old relationships and new ones: *"We prefer to help grow our distributors and work with their sales teams … but we get a lot of push back when we try to move folks over to distributors."* Clearly, there are some retailers that resist changing over to a distributor model. We can speculate that Cheesemaker 35 continues to sell direct, even though they would prefer not to, at least in part because they feel a time-honored loyalty. This suggests that, in some cases, social relationships take priority over sales relationships. It was also noted that some retailers receive their cheese both directly and by ordering from one of their distributors, which begs the question of why a retailer would use both strategies. Is it a matter of getting a higher volume of cheese, a logistical strategy, or could it stem from a desire to maintain a strong personal relationship with the cheesemaker?

Hybrid Models of Distribution

While the previous discussion treats distributors as a distinct category from retailers, it appears that these categories are not always so black-and-white. In particular, two of the most central retailers in the network—RET-136 and RET-44—appear to play a hybrid role. According to Cheesemaker 27: *"At this time [DIST-25] is the only straight up distributor that we use. [RET-136] and [RET-44] also act as distributors in a way."* Indeed, while 13 cheesemakers identified RET-136 as a *retailer* in the online survey, 5 (15.2%) identified it as a *distributor* (DIST-28) during the follow-up questions, making it among the top 5 most central distributors. In addition to two retail locations in New York City, RET-136 also sells wholesale to other retail shops and restaurants in the city. This is notable because, as mentioned previously, there appears to be a problem of prominent distribution companies not going there. In this way, RET-136 serves as a critical link to the NYC market.

The role of RET-44 as a hybrid retailer-distributor appears to be more subtle, with only one cheesemaker explicitly identifying them as a distributor during follow-up. This may be because they only sell wholesale to *restaurants*—more than 20 in the Boston area, and some in NYC—which is typically categorized as food service rather than retail. Recall Cheesemaker 69's comment that, *"[RET-44] is the only retailer in this region (or anywhere, actually) that we sell to directly. But they're also a wholesaler to restaurants so they buy significantly more volume than pretty much any other cheese shop could."* Thus, like RET-136, RET-44 is a critical actor in the regional distribution network for Vermont artisan cheese. Both source cheese directly from cheesemakers and then distribute it to urban consumers—both directly through their respective cheese shops and indirectly through restaurants or other cheese shops. Together, through their various alternative supply chain activities, we can conclude that these two retailers are crucial to the current and continued success of Vermont artisan cheese.

Finally, the hybridity and fluidity of supply chain actor categories points to an often overlooked distinction between sales and shipping processes. While many cheesemakers relinquish the rights and responsibilities to both when they contract with a distributor, this is not necessarily the only way to do it. For instance, Cheesemaker 29 identified working with an individual who is "more like a broker, but does some distribution." The main difference between a broker and a distributor is that a broker arranges the sales but is not responsible for the shipping or physical transport of the product. Conversely, Cheesemaker 61 reported that he does all of his own sales but only "physically goes to the stores closest to the farm." For the rest, he enlists outside shipping and trucking services, such as a local distributor and trucking service based out of Vermont's Northeast Kingdom. It is worth considering if maintaining some direct connection to retailers, for example, by taking responsibility for sales and marketing but contracting out transportation, may be a compromise to ensuring that social relationships can be built and the cheese story communicated.

V. Recommendations

- Targeted Marketing: Using the list of retailers provided in the survey instrument (see Appendix A), the Vermont Agency of Agriculture, Food & Markets (AAFM) could target their marketing efforts at cheese retailers across the region. Materials should include pictures of Vermont farms and cheese facilities, cheesemakers, animals, etc., and should encourage retailers to visit.

- Story Template: In order to help cheesemakers convey their story in an effective and organized way, the Vermont Cheese Council (VCC) could design a template for the story, which cheesemaker-members can fill out and distribute to their retailers and distributors.

- Story Database: The VCC could maintain an online "Cheese Story" database that contains information and narratives about Vermont artisan cheese. Cheesemakers would be responsible for making changes or updating it at least once per year. This would allow retailers easy access to the stories behind Vermont cheeses they are selling, even if they are unable to maintain a relationship with the producers.

- Chain Retailers: To address the potential issues associated with large-scale chain retailers, it is important that they are included in future conversations and marketing efforts. In addition, their employees should be invited to Vermont (e.g., Vermont Cheesemaker's Festival) to meet producers and experience the story firsthand. This kind of firsthand knowledge and experiential education is important for building credibility with customers.

- Distributors: Given the prominent role of distributors in the regional supply network for Vermont artisan cheese, it is important that we learn more about how they operate and what resources they may need to be able to easily and accurately convey Vermont cheesemakers' stories. Treating them as valued partners will be key to the successful expansion of Vermont artisan cheese into regional markets.

- New York City was identified by several cheesemakers as lacking a strong distributor presence, and therefore, requiring alternative sales and/or transportation strategies. For instance, one cheesemaker trucks a delivery there once a week, and another mentioned that they do seven farmers' markets per week in NYC through the Greenmarket (a network of large, outdoor urban farmers' markets in over 50 city locations), which makes up "a big chunk of our total sales." Thus, while there appears to be strong consumer demand, a lack of distribution companies serving this important regional market may be an obstacle for cheesemakers who do not have the time, infrastructure, or human resources to pursue an alternative strategy. It may be worthwhile to speak with cheesemakers in order to investigate this issue more deeply and gauge whether there is interest in a more collective and cooperative strategy for aggregating and transporting cheese into the city.

Appendix A

Survey Instrument: "Regional Distribution Networks of Vermont Cheesemakers"

I. Introduction & Informed Consent [not included]

II. Demographic Questions

1) What is the name of your business?

Note: This is necessary in order to be entered into the raffle; only cheesemakers who complete the survey will be entered, and we need to be able to identify those who complete it. If you are uncomfortable providing this information, or do not wish to be entered into the raffle, you may skip this question and continue with the rest of the survey.

____

2) How long (in years) have you been a licensed cheesemaker in Vermont?

____

3) From what animals' milk do you make cheese? (Check all that apply)

[ ] Cow [ ] Goat [ ] Sheep

4) What style(s) of cheese do you produce? (Check all that apply) [Note: We recognize that there are many ways to classify cheese, and that many cheeses sometimes fit into more than one category. We are providing you with one basic categorization scheme].

[ ] fresh
[ ] soft bloomy rind
[ ] soft washed rind
[ ] soft natural rind
[ ] blue veined
[ ] white brined
[ ] washed rind tomme
[ ] natural rind tomme
[ ] alpine/mountain
[ ] pressed English and American styles
[ ] Dutch styles (with eyes or open textures)
[ ] hard Italian/grana style
[ ] hard Italian/pecorino style
[ ] pasta-filata
[ ] Other(s): _________________________

5) Approximately how many pounds of cheese did you sell last year (total in all venues)?

____

6) What were your gross sales (in dollars) last year?

____

7) Which of the following best describes your production model?

( ) Cheese is made with milk from your own animals on the farm where the animals are raised
( ) Cheese is made with milk sourced from outside sources
( ) Combination of both
( ) Other: ____

8) How many people do you employ (not including yourself)?

Full-time: ____________________
Part-time year round: ___________
Seasonal: ____________________

III. Who Do You Distribute To?

9) Below is a list of artisan cheese retailers located in New England and New York. Please go through the list, which is organized by state, and select those retailers that have sold your cheese within the past year (365 days).

Connecticut

[ ] 109 Cheese Market (Ridgefield, CT)
[ ] Artisan Food Store (Southbury, CT)
[ ] Brie and Bleu (New London, CT)
[ ] Caseus (New Haven, CT)
[ ] Darien Cheese & Fine Foods (Darien, CT)
[ ] Double L Market (Westport, CT)
[ ] Fairfield Cheese Company (Fairfield, CT)
[ ] Fairway Market (Stamford, CT)
[ ] Fromage Fine Foods (Old Saybrook, CT)
[ ] Labonne's Market (multiple locations, CT)
[ ] Liuzzi Cheese (New Haven, CT)
[ ] Please Say Cheese (Waterford, CT)
[ ] Stew Leonard's (multiple locations, CT)
[ ] Village Market (Wilton, CT)
[ ] Walter Stewart's Market (New Canaan, CT)
[ ] Whole Foods (multiple locations, CT)
[ ] Wild Raspberry, The (Cromwell, CT)
[ ] Other [Please list store name and location]: ____________________________________
[ ] Other [Please list store name and location]: ____________________________________
[ ] Other [Please list store name and location]: ____________________________________
[ ] Other [Please list store name and location]: ____________________________________
[ ] Other [Please list store name and location]: ____________________________________

Maine

[ ] Bangor Wine and Cheese Company (Bangor, ME)
[ ] Blue Hill Co-op Community Market (Blue Hill, ME)
[ ] Eat More Cheese (Belfast, ME)
[ ] Five Islands Farm (Georgetown, ME)
[ ] Freeport Cheese & Wine (Freeport, ME)
[ ] Market Basket, The (Rockport, ME)
[ ] Perkins & Perkins (Ogunquit, ME)
[ ] Rising Tide Community Market (Damariscotta, ME)
[ ] The Cave (Brooklin, ME)
[ ] The Cheese Iron (Scarborough, ME)
[ ] Treats of Maine (Wiscasset, ME)
[ ] Uncorked Wine & Cheese (Augusta , ME)
[ ] Weatherbird (Damariscotta, ME)
[ ] Whole Foods Portland (Portland, ME)
[ ] Other [Please list store name and location]: ____________________________________
[ ] Other [Please list store name and location]: ____________________________________
[ ] Other [Please list store name and location]: ____________________________________
[ ] Other [Please list store name and location]: ____________________________________
[ ] Other [Please list store name and location]: ____________________________________

Massachusetts

[ ] American Provisions (Boston, MA)
[ ] Annye's Whole Foods (Nantucket, MA)
[ ] Bacco's Wine & Cheese (Boston, MA)
[ ] Bizalion's (Great Barrington, MA)
[ ] Bloomy Rind (Hingham, MA)
[ ] Boston Cheese Cellar (Boston, MA)
[ ] Central Bottle Wine & Provisions (Cambridge, MA)
[ ] City Feed and Supply (Jamaica Plain, MA)
[ ] Cornucopia Foods (Northampton, MA)
[ ] Dave's Fresh Pasta (Somerville, MA)
[ ] Falmouth Wines & Spirits (Falmouth, MA)
[ ] Fiddlehead Farm (West Tisbury, MA)
[ ] Formaggio Kitchen (Cambridge, MA)
[ ] Grand Trunk (Newburyport, MA)
[ ] Idylwilde Farm (Acton, MA)
[ ] Joppa Fine Foods (Newburyport, MA)
[ ] Marketplace at Guido's (Great Barrington, MA)
[ ] Nejaimes Wine Cellar (multiple locations, MA)
[ ] Ourglass Wine Co (Saugus, MA)
[ ] Pairings Wine and Food (Winchester, MA)

[ ] Pecorino, A Country Cheese Shop (North Grafton, MA)
[ ] Provisions...for Pantry & Cellar (Northampton, MA)
[ ] River Valley Market (Northampton, MA)
[ ] Roche Bros (multiple locations, MA)
[ ] Rubiner's Cheesemongers (Great Barrington, MA)
[ ] Russo's (Watertown, MA)
[ ] Savour Wine and Cheese (Gloucester, MA)
[ ] Sevan Bakery (Watertown, MA)
[ ] Shubies (Marblehead, MA)
[ ] South End Formaggio (Boston, MA)
[ ] State Street Deli (Northampton, MA)
[ ] The Cave Gloucester (Gloucester, MA)
[ ] The Cheese Shop of Concord (Concord, MA)
[ ] The Spirited Gourmet (Belmont, MA)
[ ] The Vin Bin (Marlborough, MA)
[ ] Wasik's (Wellesley, MA)
[ ] Whole Foods (multiple locations, MA)
[ ] Windfall Market (Falmouth, MA)
[ ] Wine & Cheese Cask, The (Somerville, MA)
[ ] Other [Please list store name and location]: ____
[ ] Other [Please list store name and location]: ____
[ ] Other [Please list store name and location]: ____
[ ] Other [Please list store name and location]: ____
[ ] Other [Please list store name and location]: ____

New Hampshire

[ ] Abbey Cellars, The (Lincoln, NH)
[ ] Angela's Pasta & Cheese Shop (Manchester, NH)
[ ] Butter's Fine Food and Wine (Concord, NH)
[ ] C'est Cheese (North Hampton, NH)
[ ] Concord Cooperative Market (Concord, NH)
[ ] Cornucopia Wine and Cheese Market (Exeter, NH)
[ ] Hanover Food Co-op (Hanover, NH)
[ ] Kearsarge Cooperative Grocer (New London, NH)
[ ] Lebanon Food Co-op (Lebanon, NH)
[ ] Walpole Grocery (Walpole, NH)
[ ] Zeb's General Store (North Conway, NH)
[ ] Other [Please list store name and location]: _____________________________________
[ ] Other [Please list store name and location]: _____________________________________
[ ] Other [Please list store name and location]: _____________________________________
[ ] Other [Please list store name and location]: _____________________________________
[ ] Other [Please list store name and location]: _____________________________________

New York

[ ] Abundance Cooperative Market (Rochester, NY)
[ ] Adams Fairacre Farms (multiple locations, NY)
[ ] American Cheese (West Sayville, NY)
[ ] Artisanal Fromagerie and Bistro (New York, NY)
[ ] Auray Gourmet (Larchmont, NY)
[ ] Barnyard (Alphabet City, NY)
[ ] Battery Place Market (New York, NY)
[ ] Bedford Cheese Shop (Brooklyn, NY)
[ ] Bedford Gourmet (Bedford, NY)
[ ] Beecher's Handmade Cheese (New York, NY)
[ ] Bernard's Market & Café (Glen Head, NY)
[ ] Bierkraft (Brooklyn, NY)
[ ] Bklyn Larder (Brooklyn, NY)
[ ] Blue Apron Foods ltd. (Brooklyn, NY)
[ ] Blue Danube Gourmet to Go (Skaneateles, NY)
[ ] Callicoon Wine Merchant & Windy Hill Cheese Shop (Callicoon, NY)
[ ] Cavaniola's Gourmet (Sag Harbor, NY)
[ ] Ceriello Fine Foods (multiple locations, NY)
[ ] C'est Cheese (Port Jefferson, NY)
[ ] Cheese Louise! (Kingston, NY)
[ ] Chelsea Market Baskets (New York, NY)
[ ] Citarella (multiple locations, NY)
[ ] D. Coluccio & Sons, Inc (Brooklyn, NY)
[ ] Despaña (New York, NY)
[ ] Di Palo's Fine Foods (New York, NY)
[ ] Dobbs & Bishop Fine Cheese (Bronxville, NY)
[ ] Eastern District (Brooklyn, NY)
[ ] Eataly (New York, NY)
[ ] Eli's Manhattan (New York, NY)
[ ] Eli's Vinegar Factory (New York, NY)
[ ] European Cheese Shop (Rochester, NY)
[ ] Fairway Market (multiple locations, NY)
[ ] Formaggio Essex (New York, NY)
[ ] Garden of Eden Gourmet (multiple locations, NY)
[ ] Gastronomie 491 (New York, NY)
[ ] Gourmet Garage (multiple locations, NY)

[ ] Grab Specialty Foods (438 7th Ave, New York, NY, 11215)
[ ] Grace's Marketplace (Long Island) (Greenvale, NY)
[ ] Grace's Marketplace (New York, NY)
[ ] Greene Grape Provision (Brooklyn, NY)
[ ] Hawthorne Valley Farm Store (Ghent, NY)
[ ] Honest Weight Food Coop (Albany, NY)
[ ] Ideal Cheese Shop (New York, NY)
[ ] Ithaca Coffee Company (Ithaca, NY)
[ ] La Petit Fromagerie (Clinton, NY)
[ ] Laraia's Cheese Shop (Nanuet, NY)
[ ] Lucy's Whey (East Hampton, NY)
[ ] Lucy's Whey Chelsea Market (New York, NY)
[ ] Marlow and Sons (Brooklyn, NY)
[ ] Murray's Cheese Shop (254 Bleeker St, New York, NY)
[ ] Murray's Cheese Shop (Grand Central Station) (43rd St. & Lexington, New York, NY)
[ ] Nickel City Cheese & Mercantile (Buffalo, NY)
[ ] Putnam Market (Satatoga Springs, NY)
[ ] Sahadi Importing (Brooklyn , NY)
[ ] Saxelby Cheesemongers (New York, NY)
[ ] Stew Leonard's (Yonkers, NY)
[ ] Stinky Brooklyn (Brooklyn, NY)
[ ] The Cheese Patch (Patchogue, NY)
[ ] The Epicurean (Troy, NY)
[ ] The Village Cheese Shop (Mattituck, NY)
[ ] Todaro Bros (New York, NY)
[ ] Union Market (Brooklyn, NY)
[ ] Whole Foods (multiple locations, NY)
[ ] Zabars (2245 Broadway, New York, NY)
[ ] Other [Please list store name and location]: ____________________________________
[ ] Other [Please list store name and location]: ___________________________________
[ ] Other [Please list store name and location]: ____________________________________
[ ] Other [Please list store name and location]: ____________________________________
[ ] Other [Please list store name and location]: ____________________________________

Rhode Island

[ ] Alternative Food Co-op (Wakefield, RI)
[ ] Eastside Marketplace (Providence, RI)
[ ] Farmstead Inc (Providence, RI)
[ ] Farmstead Lunch (Providence, RI)
[ ] Le Petit Gourmet (Newport, RI)
[ ] Milk & Honey Bazaar (Tiverton, RI)
[ ] Sweet Berry Farm (Middletown, RI)
[ ] Tony’s Colonial Food Store (Providence, RI)
[ ] Venda Ravioli (Providence, RI)
[ ] Whole Foods (multiple locations, RI)
[ ] Other [Please list store name and location]: ___________________________
[ ] Other [Please list store name and location]: ___________________________
[ ] Other [Please list store name and location]: _________________________
[ ] Other [Please list store name and location]: _________________________
[ ] Other [Please list store name and location]: __________________________

Vermont

[ ] Brattleboro Food Co-op (Brattleboro, VT)
[ ] Castleton Village Store (Castleton, VT)
[ ] Cheese House, The (Arlington, VT)
[ ] Cheese Traders and Wine Sellers (South Burlington, VT)
[ ] City Market (Burlington, VT)
[ ] Fenix Fine Foods (Randolph, VT)
[ ] Harvest Market (Stowe, VT)
[ ] Healthy Living Market (Burlington, VT)
[ ] Hunger Mountain Co-op (Montpelier, VT)
[ ] Middlebury Natural Foods Coop (Middlebury, VT)
[ ] Mountain Cheese and Wine (Stowe, VT)
[ ] Putney Food Co-op (Putney, VT)
[ ] South Royalton Market (South Royalton, VT)
[ ] Sustainable Farmer (Windsor, VT)
[ ] Sweet Clover Market (Essex, VT)
[ ] Upper Valley Food Co-op (White River Jct., VT)
[ ] Wine & Cheese Depot (Ludlow, VT)
[ ] Woodstock Farmers' Market (Woodstock, VT)
[ ] Other [Please list store name and location]: __________________________
[ ] Other [Please list store name and location]: ________________________
[ ] Other [Please list store name and location]: __________________________
[ ] Other [Please list store name and location]:____________________________
[ ] Other [Please list store name and location]:____________________________

IV. Retailer-specific Questions

10) Do you use a distributor to get your cheese to [page("piped title")]?
( ) Yes
( ) No

11) What is the name of the distributor?
____

12) In the past year, approximately what percent of your total product was distributed to [page("piped title")]?
____

13) Approximately how long have you been selling your cheese to [page("piped title")]?
( ) Less than a year
( ) 1-2 years
( ) 3-4 years
( ) 5+ years

14) Which styles of cheese that you produce have been sold at [page("piped title")] in the past year? (Check all that apply)

15) How did your cheese first come to be sold at [page("piped title")]? (Check all that apply)
[ ] By sending samples
[ ] Because of a distributor
[ ] Because of a particular cheesemonger who works/worked there
[ ] Because of customer demand
[ ] Other: ____

16) In the past year have you shared information about your cheese with cheesemongers at [page("piped title")]?
( ) Yes
( ) No

17) What kinds of information have you shared? (Check all that apply)
[ ] Information about product(s)
[ ] Information about your farm/dairy
[ ] Information about production conditions
[ ] Other [please describe]: ____

18) In the past year, approximately how often did you, or someone else at your company, correspond with cheesemongers from [page("piped title")], either by phone or email?
( ) At least once per week
( ) At least once per month
( ) At least once per quarter
( ) At least once every 6 months

( ) At least once per year
( ) Never

19) Have you ever met a cheesemonger from [page("piped title")] face-to-face?
( ) Yes
( ) No

20) How many times in the past year have you visited [page("piped title")]?
( ) Never this past year
( ) Never this past year, but at least once in the past 5 years
( ) Once or twice this past year
( ) Three or four times this past year
( ) Five or more times this past year

21) How many times in the past year has a cheesemonger from [page("piped title")] visited you at your farm/dairy?

( ) Never this past year
( ) Never this past year, but at least once in the past 5 years
( ) Once or twice this past year
( ) Three or four times this past year
( ) Five or more times this past year

22) If you know and are willing, please provide the name of your main point of contact at [page("piped title")].
This information is valuable because it allows us to confirm relationships, which in turn helps to establish strong, bidirectional relations in the social network analysis. We will not share or sell this information with anyone, and we will never use individual names when reporting and discussing results.
____

23) Use the text box below to clarify or elaborate on a response, or provide any additional comments or details that you feel are relevant to your relationship with cheesemongers at [page("piped title")] and may help us to better understand this relationship.
____
____
____

Appendix B

Descriptive Statistics for Cheesemaker Demographic Variables

Variable	Mean (SE) or %
Years as a licensed cheesemaker in VT (n = 34)	13.79 (3.56)
Production model (n = 34)	
Farmstead	64.7%
Outside sources	14.7%
Both	20.6%
Type of animal (n = 34)	
Cow	82.4%
Goat	50.0%
Sheep	17.6%
Number of types of different animals (n = 34)	
1	55.9%
2	38.2%
3	5.9%
Pounds of cheese sold last year (n = 28)	88,329 (46,872)
100-999	17.9%
1,000-9,999	39.3%
10,000-99,999	25.0%
100,000-999,999	14.3%
> 1,000,000	3.6%
Gross sales ($) last year (n = 23)	634,813 (324,826)
< 10,000	21.7%
10,000-49,999	8.7%
50,000-99,999	13.0%
100,000-499,999	34.8%
500,000-999,999	13.0%
> 1,000,000	8.7%
Average number of employees (n = 33)	
Full-time	6.3 (2.0)
Part-time	1.1 (0.3)
Seasonal	1.6 (0.7)
Style of cheese (n = 34)	
Fresh	44.1%
Soft bloomy rind	38.2%
Soft washed rind	23.5%
Soft natural rind	11.8%
Blue-veined	26.5%
White brined	8.8%
Washed rind tome	20.6%
Natural rind tome	35.3%

Alpine mountain	38.2%
Pressed English & American styles	32.4%
Dutch styles	17.6%
Hard Italian grana	14.7%
Hard Italian pecorino	8.8%
Pasta filata	0%
Mean number of cheese styles (n = 34)	3.2 (0.4)

Note. SE = standard error of mean.