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Marketing tips for small-scale, local honey bee keepers in northwest Arkansas

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Abstract

The objective of this thesis was to gain market information for beekeepers regarding different honey bee products and to provide information about economic feasibility when produced on a small, local scale. Since cost-of-production information about operating an apiary is widely available, the focus of this work was on gaining marketing knowledge. One of the objectives of the surveys was to develop a better sense of what potential resellers of honey bee products considered locally produced. Another objective was to determine preferences for honey bee product packaging as well as bee pollination services. Using that feedback, a marketing plan for different niche markets can be developed for part-time beekeeping operations. The survey results pertaining to local retailers and end users in Northwest Arkansas in 2016 suggested a supply radius near 100 miles and a preference for small packaging in general. Least cost supply, and at least regional brand recognition were not deemed as important as ensuring locally sourced products that can be sold at a premium. Different niche markets revealed both similar and different priorities related to these marketing aspects.

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Meet the Student-Author



Samuel Goll

I was born in Madison, Wisconsin and was raised in Fayetteville, Arkansas where I graduated from Fayetteville High School in 2013. In May 2017, I graduated with honors from the University of Arkansas with a B.S. in Agricultural Business with a focus on Marketing and Management. While enrolled at the U of A I was heavily involved with the Bumpers Honors Student Board, the Agricultural Business Club, the AAEA Quiz Bowl Team, and multiple other organizations.

I started beekeeping when I was 17 years old on a random spark of interest coupled with a passion for insects that I have had from a young age. As I continued to keep honey bees during high school I realized that I could put my entrepreneurial spirit to work and make a business out of the operation. My passions for agriculture, bees, and business manifested in my small business and major, and also in my honors research. I would like to thank my thesis advisor, Dr. Michael Popp, and my thesis committee, Dr. Jennie Popp and Dr. Don Steinkraus, for the immense help they offered. With their aid, I completed research that will hopefully help my business grow, as well as the honey bee population, and help beekeepers market their products. I will continue studying and pursuing other opportunities in this area and in the agricultural industry as a whole.

Introduction

While honey is a delicacy to people around the world, honey bees are respected for both food and pollination services. The common honey bee pollinates roughly \$20 billion worth of agricultural goods in the U.S. (Mandal and Mandal, 2011). Approximately 766,000 pounds of honey were produced by small beekeepers with 5 colonies or less in 2016 (USDA-NASS 2017). Unfortunately, bees around the world have been dying due to colony collapse disorder (CCD) with no known cause or cure (US-EPA, 2016). More than \$12 million (Purcell-Miramontes, 2017) has been invested in USDA-NIFA research over the past decade to study CCD. With CCD, there has been a worldwide push for increasing the number of beekeepers and colonies. At this time of need, want, and interest, there are humanitarian and business opportunities (Wu et al., 2014) that can make small-scale beekeeping more than just a hobby.

The objective of this study was to collect marketing data to aid startups and established beekeeping operations interested in meeting consumer demand. From the perspective of business owners, we investigated demand for honeybee products sourced from local small-scale beekeeping operations.

Materials and Methods

Northwest Arkansas was chosen as the focus region to assess potential demand for product type, packaging, pollination services, and to gain a greater understanding of the importance of local production. Three respondent groups that consisted of grocery stores, restaurants, and coffee shops named “Retailers,” local fruit and vegetable “Growers” that might also be in need of pollination services, and local “Brewers” that might be interested in honey to make mead (honey beer), honey wine or whiskey were surveyed.

Three on-line surveys were distributed via anonymous e-mail link given cost and time limitations and to simplify data entry (Salant and Dillman, 1995). First contact occurred on 10 November 2016 targeting ten “Brewers,” ten “Growers,” and twenty “Retailers.” While the “Brewers” and “Growers” samples represented the local population of respondents for which e-mail addresses could be obtained, the “Retailers” sample was randomly selected from the local population. Follow up occurred on 15 November with a third contact (22 November) to “Retailers” only as the response rate for this group was lowest. Further detail can be found in Goll (2017).

For each respondent, the surveys assessed what honey bee products were carried and whether there was interest in other products. Next, the “local” concept was defined by the respondent in terms of allowable distance from the retail outlet. Distributions of distances for this response were tested using a Chi-Square test in EViews v. 9 (Lilien et al., 2015). Using a 5-point Likert scale ranging from “Strongly Agree” to “Strongly Disagree” and a “Don’t Know” option, respondents were asked to indicate their level of agreement about the importance of local production, production within the U.S., fair retail market access for local small-scale to mid-sized producers, and brand recognition with at least a regional label. Finally, there were two questions about packaging options for honey as well as an open-ended question to elicit further feedback.

To assess relative differences about individual questions related to a topic, responses about level of agreement to a question were averaged across all respondents for that topic to provide a baseline level of agreement to the topic. To assess whether a particular question in a topic carried more relative importance than another question, the average response for the question was compared to the aforementioned overall average baseline level of agreement for the topic. Deviations from the baseline average were then plotted on a bar-graph and shaded in light gray for positive, and dark gray for negative deviations from the average to draw attention to marketing factors that mattered most to respondents (lighter shades of gray).

All Responses (# of obs.)	# of Responses						Product	
	SA	A	N	D	SD	DK	Avg ^a	Dev ^b
Raw Honey (13)	5	5	1	1	0	1	1.83	0.52
Crop-Specific Honey (15)	3	9	1	1	0	1	2.00	0.35
Flavored Honey (16)	1	5	5	3	0	2	2.71	-0.36
Creamed Honey (15)	1	5	7	1	0	1	2.57	-0.22
Honey Comb (16)	3	6	5	1	0	1	2.27	0.08
Honey Straws (16)	0	7	4	3	0	2	2.71	-0.36
Overall Average ^c							2.35	
Brewers								
Raw Honey (3)	0	1	1	1	0	0	3.00	-0.08
Crop-Specific Honey (4)	0	3	0	1	0	0	2.50	0.42
Flavored Honey (4)	0	0	2	2	0	0	3.50	-0.58
Creamed Honey (4)	0	2	1	1	0	0	2.75	0.17
Honey Comb (4)	0	0	3	1	0	0	3.25	-0.33
Honey Straws (4)	0	2	2	0	0	0	2.50	0.42
Overall Average							2.92	
Growers								
Raw Honey (4)	3	1	0	0	0	0	1.25	0.76
Crop-Specific Honey (4)	2	1	1	0	0	0	1.75	0.26
Flavored Honey (5)	1	1	2	0	0	1	2.25	-0.24
Creamed Honey (5)	1	2	1	0	0	1	2.00	0.01
Honey Comb (5)	1	4	0	0	0	0	1.80	0.21
Honey Straws (5)	0	2	0	2	0	1	3.00	-0.99
Overall Average							2.01	
Retailers								
Raw Honey (6)	2	3	0	0	0	1	1.60	0.64
Crop-Specific Honey (7)	1	5	0	0	0	1	1.83	0.41
Flavored Honey (7)	0	4	1	1	0	1	2.50	-0.26
Creamed Honey (6)	0	1	5	0	0	0	2.83	-0.59
Honey Comb (7)	2	2	2	0	0	1	2.00	0.24
Honey Straws (7)	0	3	2	1	0	1	2.67	-0.43
Overall Average							2.24	



Fig. 1. Description of relative importance about market appeal by respondent group.

Notes: ^a 1 = Strongly Agree(SA)–5 = Strongly Disagree (SD). Don’t know (DK) counted as observation but excluded from calculation of parameter averages shown. ^b Deviation from overall average. ^c Average of parameter averages for all respondents and individual respondent groups.

Results and Discussion

Market Appeal

There was interest in every honey bee product (Figs. 1 and 2). Raw honey, crop-specific honey, lip balm, and honey wine drew more attention. Flavored honey, creamed honey, honey straws, and pollen received weaker feedback about relative market appeal with honey whiskey and bees wax generating least value from respondents. While statistical tests comparing frequency distributions of answers across products were not performed, given the small sample size, the bar charts summarized the findings for all respondents and the individual niche markets. “Brewers” were the only respondent group that stated that raw honey had relatively low market potential. They favored crop-specific honey, honey straws, lip balm, mead, and honey whiskey. Addi-

tionally, three of the breweries stated that they do not carry mead but indicated that they would like to. “Growers” were mainly interested in food products that would complement sales of their own produce. Out of all twelve honey bee products that the survey asked about, ten products received “Strongly Agree/Agree” from at least half of the “Retailer” respondents. This showed the relatively strong entrepreneurial spirit of “Retailers” that are continually searching for new products, suppliers, and opportunities. Creamed honey and honey straws may be foreign and unknown, leading “Retailers” to be less interested in them.

What Is Considered Local?

The most common response across all three surveys to the question about what distance is considered local was 100 miles (Fig. 3). A Chi-square test about differences in the

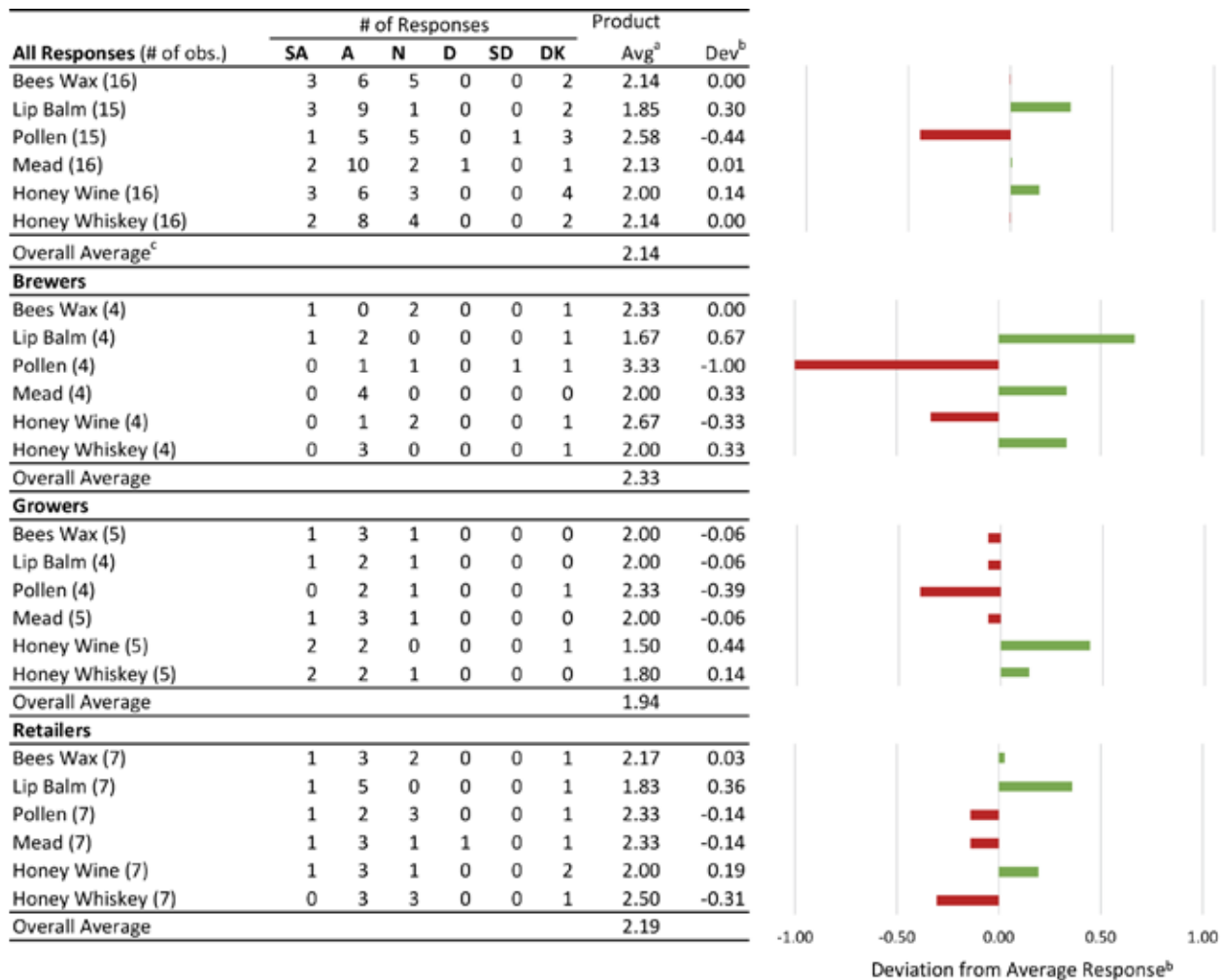


Fig. 2. Description of relative importance about market appeal by respondent group.

Notes: ^a 1 = Strongly Agree(SA)–5 = Strongly Disagree (SD). Don’t know (DK) counted as observation but excluded from calculation of parameter averages shown. ^b Deviation from overall average. ^c Average of parameter averages for all respondents and individual respondent groups.

distribution of responses by niche market revealed no statistically significant differences ($P = 0.84$) likely due to sample size. Nonetheless, “Brewers” showed the greatest range in responses, likely to increase their supply region. Local “Growers” leaned toward a greater distance, likely to expand their market area. Finally “Retailers” had the narrowest range of responses and desired a more proximal market region, possibly to emphasize the ‘local’ aspect of products sold.

What Product Attributes Were Deemed Important?

Figure 4 summarizes responses to questions about the importance of local supply, whether the product is made in the U.S., whether opening the marketing channel to small-scale to mid-sized operations was of concern and whether a product with at least regional brand recognition was necessary. Overall and most important was sourcing locally when possible and responses suggest strong market potential for honey bee products. Second, most respondents believed that small and mid-sized farms should be given a chance to participate in the food supply chain, which also favors small bee keepers. Respondents were relatively indifferent on the issue of sourcing within the United States and did not care about the label. Apiaries may therefore be advised not to spend too much time and effort toward branding their product. Responses did not vary by niche market. “Retailers” found it most important to source locally as serving ‘locavores’ is a current hot topic in retailing (Gogoi, 2008).

Preferred Packaging Size

The general trend among the local businesses was a preference for smaller packaging starting at half-pints (Fig. 5). The exception was honey straws which were not highly attractive across all respondent groups. Honey straws drew the attention of “Brewers” who might use them in their eateries. Further, it is hypothesized that smaller-size packaging allows for honey to be an impulse purchase with smaller packaging impinging less on a purchaser’s budget than a larger package. Small packaging also allows the consumer to try out a product that they may not use in large quantity thereby guaranteeing freshness. Overall, glass was the preferred material for packaging honey. Simple and complex designs were ranked equal in appeal, suggesting again that beekeepers may be able to save cost using simple glass containers with labels that draw attention to local production and small-scale farming. Data not shown but available (Goll (2017).

Open Response

Free-form feedback showed legal issues to be of concern to “Brewers” (Table 1). A “Retailer” justified weak honey straw demand given poor ability to price separately and another “Retailer” expressed interest in differentiating ‘local’ honey from an array of consumer benefit perspectives such as the popular belief that local honey helps with allergies (National Honey Board, 2017).

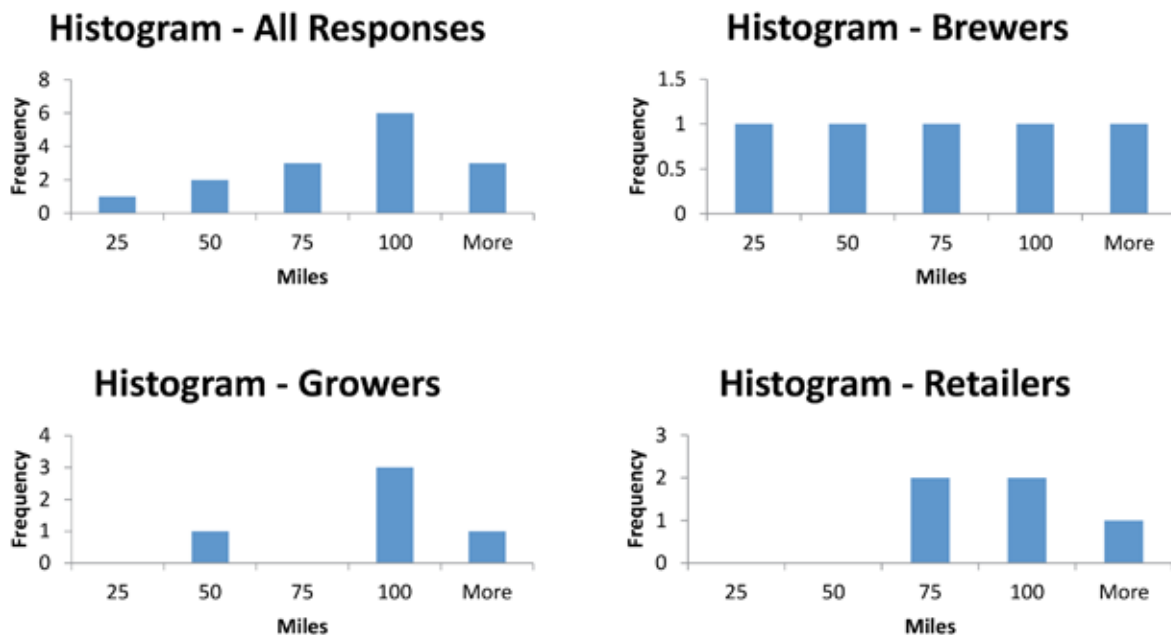


Fig. 3. Retailer response to acceptable supplier distance in miles from retail outlet considered “local” by respondent group.

General Observations

Finally, it is good to build retailer connections with products that are profitable and avoid saturating the market by contacting competitors in the same market or region. This will maintain interest in the product by existing retailers and reduces retailer incentive to lower price to gain market share thereby hurting beekeeper margin and potentially exhausting available inventory with unexpected demand pressure. The national price of honey was \$2.08 per pound in 2016. With a price this low, a hobbyist or part-time beekeeper would struggle to meet cost (USDA-NASS, 2017). The key to economic success is to differentiate from the competition and know that a price premium can be charged for local honey given strong demand.

If this project were to be conducted again, a more precise survey tool with actual product samples would elicit more reliable results as respondents would be more keenly aware of product attributes. Expanding the survey to actual consumers rather than retailers would assist in this aspect. Fur-

ther, an “Arkansas Grown” label in addition to U.S. and local goods (Arkansas Department of Agriculture, 2017) might be of interest. Finally, since level of agreement to statements is subjective and varies by respondent, eliciting willingness to pay in a choice experiment would provide more tangible results.

Conclusions

Marketing small packages offers a lower budget hurdle for the consumer even as packaging cost per pound of honey sold is likely higher. Bulk containers of honey are unrealistic for part-time beekeepers. A larger margin can be secured by a beekeeper that promotes and sells honey with distinctive local attributes. Paying attention to niche market differences is important with different end uses. Glass and a simple label highlighting the importance of local, small-scale production are preferred packaging options in comparison to complex package designs with a brand.

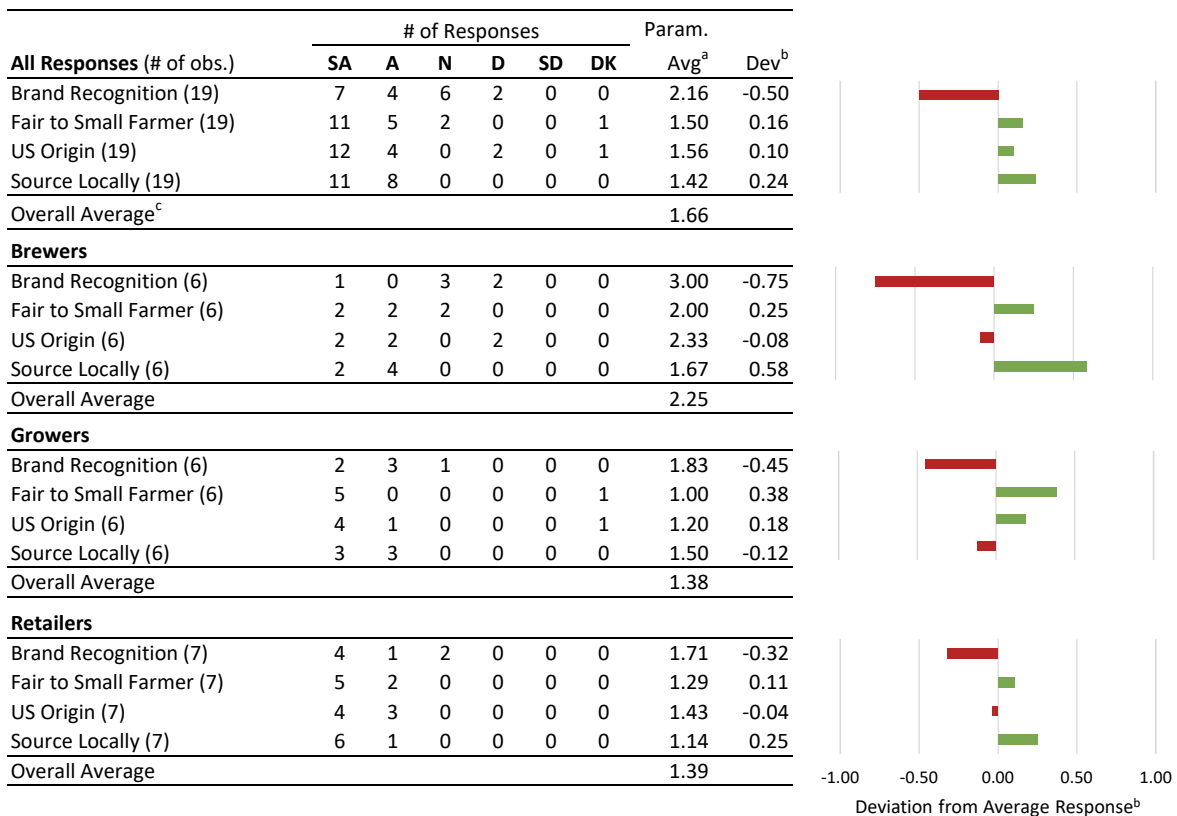


Fig. 4. Description of relative importance of retailing parameters by respondent group.

Notes: ^a 1 = Strongly Agree(SA)–5 = Strongly Disagree (SD). Don’t know (DK) counted as observation but excluded from calculation of parameter averages shown. ^b Deviation from overall average. ^c Average of parameter averages for all respondents and individual respondent groups.

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All Responses (# of obs.)	# of Responses			Pack.	
	No	Maybe	Yes	Avg ^a	Dev ^b
Honey Straw (13)	4	4	5	1.08	0.04
Half-Pint (14)	2	3	9	1.50	0.47
Pint (13)	2	3	8	1.46	0.43
Quart (13)	4	2	7	1.23	0.20
Gallon (12)	7	2	3	0.67	-0.37
5-Gallon (11)	9	1	1	0.27	-0.76
Overall Average ^c				1.03	
Brewers					
Honey Straw (3)	0	1	2	1.67	0.94
Half-Pint (3)	1	0	2	1.33	0.61
Pint (3)	1	1	1	1.00	0.28
Quart (3)	2	1	0	0.33	-0.39
Gallon (3)	3	0	0	0.00	-0.72
5-Gallon (3)	3	0	0	0.00	-0.72
Overall Average				0.72	
Growers					
Honey Straw (3)	1	1	1	1.00	-0.33
Half-Pint (4)	0	0	4	2.00	0.67
Pint (4)	0	0	4	2.00	0.67
Quart (4)	1	0	3	1.50	0.17
Gallon (3)	1	1	1	1.00	-0.33
5-Gallon (2)	1	1	0	0.50	-0.83
Overall Average				1.33	
Retailers					
Honey Straw (7)	3	2	2	0.86	-0.17
Half-Pint (7)	1	3	3	1.29	0.26
Pint (6)	1	2	3	1.33	0.31
Quart (6)	1	1	4	1.50	0.48
Gallon (6)	3	1	2	0.83	-0.19
5-Gallon (6)	5	0	1	0.33	-0.69
Overall Average				1.02	

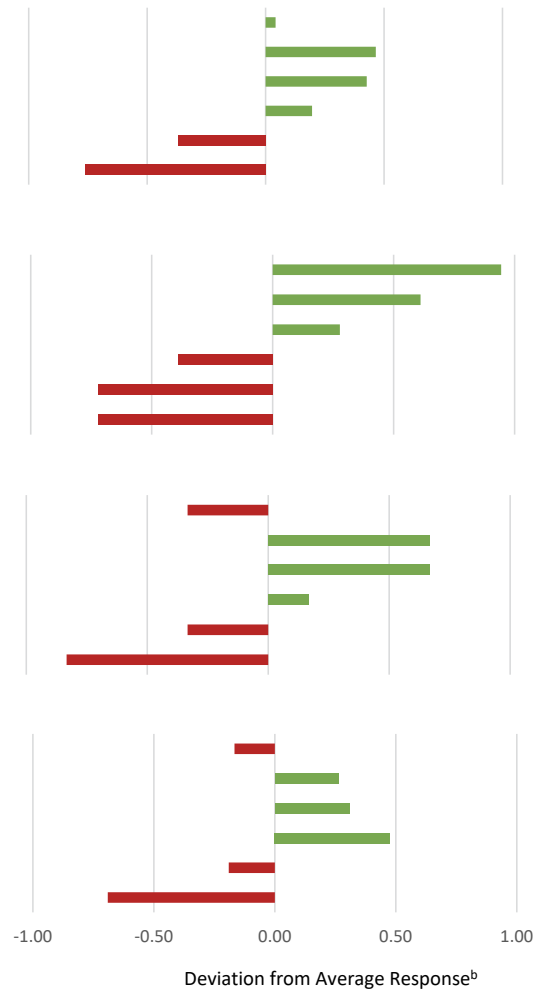


Fig. 5. Description of relative preferences in honey package size by respondent group.

Notes: ^a No = 0, Maybe = 1, Yes = 2. The package average was weighted by the number of responses obtained. ^b Deviation from overall average. ^c Average of parameter averages for all respondents and individual respondent groups.

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Table 1. Open responses by respondent group.

Brewer 1	"I would be more likely to use honey in beer production than sell it to customers."
Brewer 2	"These questions were almost too general to apply to a brewery in our area. For me a lot of raw brewing ingredients are going to be purchased based upon the beer style so it's impossible in some instances to buy local. As far as merchandising goes, we do try to shop as local as possible as long as budget and time constraints are met. As far as honey is concerned we currently aren't licensed to make mead (honey wine) nor do we use raw honey in any of our beer. Nor are we permitted to sell outside food products."
Brewer 3	"We use no honey in our products as of now."
Grower 1	"Blueberry grower looking for hives."
Grower 2	"Hi! We use honey only as a sweetener. It's a free product to our customer, so price is the penultimate thing. Thanks"
Retailer 1	"This info does not necessarily reflect what the retailer desires but more what I've heard from consumer requests. In turn, what the consumer wants will reflect what the retailer desires I suppose."
Retailer 2	"From my experience, customers are usually looking for local honey to help with their allergies. As well as bee pollen, because that works just as well as honey does for allergies. Coming from a customer's point of view, the price matters as well. But once the customer knows that they're getting local, raw honey, they're willing to pay more for the product."
Retailer 3	"I currently am pursuing honeycomb as a featured offering in bakery....small packaging, gift baskets, go with fresh baked goods."