

Production and Marketing Reports

Retail Promotion and Advertising in the Green Industry: An Overview and Exploration of the Use of Digital Advertising

Susan S. Barton^{1,3,5} and Bridget K. Behe^{2,4}

ADDITIONAL INDEX WORDS. survey, marketing, QR codes, customer loyalty programs, customer demographics, social media

SUMMARY. The retail portion of the green industry, valued at \$50.55 billion, continues to provide a major connection between the industry and consumers. Given the importance of retailers in the green industry and little research exists that documents their advertising practices and impacts, the 2013 Trade Flows and Marketing Practices survey included questions to capture data for retail-only firms. This paper reports on the percentage of sales retailers allocate to promotion and advertising, including a breakdown of media used; point-of-sale (POS) materials and how they are acquired; how green industry retailers are using social media and mobile marketing [in particular, quick response (QR) codes]; the methods retailers use to collect customer demographics; customer loyalty programs (CLP); and how they are managed by retailers and a comparison of retail firms' advertising practices by size of firm. A combination of mailed and Internet-distributed surveys resulted in a total of 699 useable retail business responses with greater than or equal to \$1000 in annual revenue. The median expenditure as a percentage of sales on advertising was 3.6% for all retail firms responding with 33.7% spending no dollars on advertising. In examining the distribution based on media type, the Internet was the most frequently listed by firms (32.3%) with a mean expenditure of 42.5% of total advertising dollars. Social media was listed second most frequently (21.5%) with a mean expenditure of 29.6%. Newspapers were listed as the third most frequently used type of media (18.0%). Social media use is strong and among social media platforms, Facebook (60%) far exceeds any other platform. A third of the respondents (34.2%) reported the use of POS materials. A very small percentage of firms (3.0%) reported using QR codes and 19.4% reported having a CLP. Of those, 45.8% used customer purchase cards, whereas 35.4% used POS software. Nearly 33% of the firms collected demographic information about their customers. Of those, the method with the highest percentage use (multiple responses were permitted) was social media (50.7%) followed by CLP (48.9%), web visits (34.5%), questionnaires (15.7%), social coupons (13.5%), census data (3.9%), and marketing firms (3.1%). There were firm-size differences in seasonal employees and mean sales per employee with large firms having greater numbers than hobby, small- or medium-sized firms. There were no differences in the percentage of advertising media allocations based on firm size, but large firms used web visits, social coupons, and social media more than other types of firms to collect customer demographics. While, green industry retailers are currently using social media for marketing green industry goods, they have much more opportunity to use electronic media for CLPs and to begin using QR codes or other mobile-centric technologies to deliver in-store promotional information to consumers.

The U.S. environmental horticulture industry, or green industry, is composed of wholesale

nursery; greenhouse; and turfgrass sod producers; landscape design; installation and maintenance firms;

and wholesale and retail distribution firms such as garden centers, home stores, mass merchandisers with lawn/garden departments, brokers, and re-wholesale distribution centers; and allied trade suppliers of inputs to the industry. The retail portion of the industry was valued at \$50.55 billion (Hodges et al., 2015), including the production and sale of outdoor nursery stock, indoor-potted plants and floral items, cut flowers, fertilizer-lime-chemicals and other soil treatments, lawn and garden equipment and tools, materials used in landscaping or lawn service, and artificial/silk flowers plants and trees. That study also showed that retail firms (102,210) slightly outnumbered landscape service firms (98,857). Although the economic impact of landscape service dollars exceeds the economic impact of retail dollars, retail outlets continue to be a major connection between the industry and consumers (Hodges et al., 2015).

The green industry has historically been a fast-growing segment of the U.S. economy. However, the industry appears to have reached the mature stage of its life cycle, growing slowly or even declining in some segments (Hall, 2010). When an industry reaches the mature stage of its life cycle, promotion and advertising become especially critical to increase market share, maintain the customer base, and generate profit. Promotion and advertising are expected to increase sales (Carlton and Perloff, 1999). According to Bagwell (2005) in his economic analysis of advertising, that effect can be persuasive (alters consumers' tastes engendering desire for the product), informative (provides information to an imperfect market), or complementary (convinces consumers that products fit their preferences). In fact, a 2012 study based on data from the 2008 Trade Flows and Marketing Practices survey (Palma et al., 2012) showed that most promotion and advertising expenditures were, indeed, effective in increasing green industry sales. Firm size impacted the type of advertising that was most effective. Smaller firms demonstrated a greater impact in the mechanisms for building relationships (e.g., Internet and printed material) compared with

larger firms. For larger firms, mass media tended to be more cost-effective (Palma et al., 2012).

Advertising methods vary in their influence on shopping behavior. Ort et al. (1998) studied the effectiveness of advertising and promotional programs at the independent garden center level followed by a validation study conducted by Safley et al. (1999). According to Ort et al. (1998), on average, 91.6% of the survey participants stated that their shopping decisions were influenced by advertising. Among those customers who actually responded to an advertisement, newspaper advertisement (66.9%), newsletter (17.7%), radio advertisement (6.5%), and newspaper insert (4%) were identified as the top four types of advertisements to which they responded. However, in the context of the total survey population, these respondent groups represented small segments, 5.6%, 1.5%, 0.5%, and 0.3%, respectively. Safley et al. (1999) reported a relatively high response rate for newspaper advertisements (91.4% of those who responded to an advertisement did so to a newspaper which equated to 53.2% of the general survey population). Response rates for the newsletter and radio advertisement categories were 4.9% and 1.2%, respectively (or 2.9% and 0.7% of the total survey population). These data, collected more than 15 years ago, reflect a very different digital environment from today.

The sales benefit cost ratio (BCR) is an important statistic that shows how much additional sales are generated per \$1 expenditure on each promotion and advertising category (Palma et al., 2012). For small firms, Internet advertising generated the

highest BCR at 5.9:1, which implies that for each \$1 expended online, \$5.90 was generated in sales. In comparison, mass media has a BCR of 4.2:1. The \$1.70 difference between Internet and mass media could result in the Internet being a more effective means for small firms to bring in customers. Internet advertising may give the smaller firm a competitive advantage against the larger firm, especially since the larger firms might have more resources for mass media. In regard to printed media for small firms, the BCR was higher for printed materials (4.5:1) compared with mass media (4.2:1). This could be the result of printed materials being more easily targeted to a wider group of consumers, but via a means that is more direct than mass media. Smaller firms potentially have fewer resources thereby leading to fewer mass media spots each with a shorter duration.

As firms increase in size, mass media appears to play a more prominent role in advertising (Palma et al., 2012). For large firms, the BCR for mass media almost doubled that of printed materials while quadrupling that of Internet promotions. As the firm size increased, the Internet volume was only a small part of overall sales, which may be due to the changing clientele of the firm or the challenge of reaching a broader geographic customer base to generate more sales. With respect to very large firms, mass media had the only significant BCR at 5.8:1. When examining the aggregate model with all firms included, sales increased \$6.30 and \$10.20 in sales for each \$1 spent on printed materials (BCR = 6.3) and mass media promotions (BCR = 10.2), whereas Internet promotions were insignificant (Palma et al., 2012).

Since the 2008 Trade Flows and Marketing Practices survey, technology use by businesses has increased (Dukes, 2014). More people use technology in their daily lives and therefore technology-based marketing has become a more viable avenue for retailers to reach consumers. Current research shows that 81% of American adults use the Internet; over half of them are using two or more social media sites (Duggan et al., 2015). Technology from an advertising and promotion standpoint can include webpages, online newsletters, blogs, quick response

codes on products, and a wide variety of social media. In the Paid Social Media Report (Nielsen, 2013), social networks and blogs are the top online destinations, accounting for the majority of time online and reaching 80% or more of active Internet users.

Social media in the broadest sense of the term is defined as any online service through which users can create and share a variety of content. Although social media have existed from the birth of generation Y (Gen Y beginning in 1981), they were most widely adopted after 2003 (Boyd and Ellison, 2008). They encompass user-generated services (such as blogs), social networking sites, online review/rating sites, virtual game worlds, video sharing sites, and online communities, whereby consumers produce, design, publish, or edit content (Krishnamurthy and Dou, 2008). Gen Ys use of social media is already changing the marketplace, workplace, and society; it may ultimately lead to new business models, processes, and products (Bolton et al., 2013). Interaction through social media sites is a way for organizations to build relationships (Waters et al., 2009), particularly among digital natives (people who grew up in a digital era).

Chaffey (2016) reported that, in 2014, a higher number of persons access the Internet from mobile devices compared with desktop devices, making mobile devices an important means of connectivity to other persons and businesses. Mobile marketing, defined as “a set of practices that enables organizations to communicate and engage with their audience in an interactive and relevant manner through any mobile device or network” (Mobile Marketing Association, 2009) is another relatively new technology available to retailers. Mobile marketing has grown rapidly, in part because of its ability to offer highly personalized, interactive communication that is more specific to a consumer’s location or consumption context than traditional advertising messages (Rohm and Sultan, 2006).

Mobile devices represent a fruitful avenue for advertisers and consumers. For advertisers, mobile devices offer another way to reach potential consumers with interactive, persuasive messages. For consumers,

Researcher salary for this project was supported by the USDA National Food and Agriculture, Hatch Project Number M1CL 02085 and by Michigan State University AgBioResearch.

We thank the Horticultural Research Institute, who supplied funding which was essential to the data collection, and members of the S-1065 Regional Project for the data, especially Alan Hodges, who led the survey data collection and dataset verification efforts.

¹Department of Plant and Soil Sciences, University of Delaware, 146 Townsend Hall, Newark, DE 19716

²Department of Horticulture, Michigan State University, 1066 Bogue Street, East Lansing, MI 48824

³Associate Professor

⁴Professor

⁵Corresponding author. E-mail: sbarton@udel.edu.

doi: 10.21273/HORTTECH03578-16

mobile devices can empower would-be shoppers by giving them greater access to useful, product-relevant information on demand and in the retail environment. This potential is even more promising as consumers adopt technologically more advanced mobile phones, such as smartphones and other mobile devices with web-browsing capabilities (Lane, 2010). Consumer needs for reliable, context-specific information about sustainable products can be met by mobile advertising campaigns that harness the potential of QR codes (Atkinson, 2013).

The adoption of social media, either from a desktop or mobile device, has affected how companies communicate with consumers. Companies and organizations use online social marketing programs and campaigns in an effort to reach consumers where they “live” online. However, as companies develop social media strategies, platforms such as YouTube (San Bruno, CA), Facebook (Menlo Park, CA), and Twitter (San Francisco, CA) are too often treated as stand-alone elements rather than part of an integrated system (Hanna et al., 2011).

A QR code, another type of mobile marketing, is a type of matrix bar code or two-dimensional code designed to be read with smartphones. The code consists of black modules arranged in a square pattern on a white background. The information encoded may be a text, a uniform resource locator (URL), or other data. The popularity of QR codes is growing rapidly all around the world, particularly in Korea, Japan, and the United States (Shin et al., 2012). QR codes are rapidly gaining high levels of acceptance due to the wide adoption of smartphones. Comscore in June of 2011 found that 14 million smartphone users in the United States, representing 6.2% of the total mobile audience, had scanned a QR or bar code on their smart device. The study reported that users are most likely to scan codes found in newspapers, magazines, and on product packaging, and that they do so while at home or in a store. That is, they were responding to advertisements, discount coupons, or looking for information about products, all of which are conventional uses for QR codes.

For the 2008 Trade Flows and Marketing Practices survey, results were used in a model to estimate the effects of three promotion and advertising categories: printed materials, mass media, and Internet promotions. A 100% increase in promotion and advertising expenditures in printed materials and mass media increased sales 16.25% and 28.54%, respectively. Internet promotions had no statistically significant effects on green industry sales. Internet promotion expenditures were likely small relative to average sales of all firms combined and therefore may not have shown a statistically significant impact in increasing sales (Palma et al., 2012).

Given the importance of retailers in the green industry and with little research documenting their advertising practices and impacts, the 2014 Trade Flows and Marketing Practices survey added new questions to capture data for retail-only firms (Hodges et al., 2015). These questions related both to advertising practices as well as methods of consumer research. The objectives of this paper are to provide a baseline analysis of 1) the percentage of sales retailers allocate to promotion and advertising, including a breakdown of media used; 2) POS materials and how they are acquired; 3) how green industry retailers are using social media and mobile marketing (in particular, QR codes); 4) the methods retailers use to collect customer demographic information; 5) CLP and how they are managed by retailers; 6) the comparison of retail firms’ advertising practices by size of firm.

We hypothesized that the use of digital advertising grew significantly since the previous survey in 2008. We intend to explore if greater adoption of new technologies has impacted green industry retailers’ methodologies for marketing.

Materials and methods

The 2014 National Green Industry Survey gathered information on business practices and operating results for calendar year 2013 or fiscal year 2013–14. The questionnaire and survey protocol were approved by the University of Florida Institutional Review Board for compliance with ethical standards for human subjects research.

This study represented the sixth national survey conducted by the Green Industry Research Consortium, following previous surveys in 1989, 1994, 1999, 2004, and 2009. The 2014 survey targeted plant dealer firms, for the first time, in addition to growers, with new questions added regarding retail marketing practices. For the 2014 survey, a list of over 110,000 grower and plant dealer firms in the United States was developed. The list contained information on company name, contact person, mailing address, and in some cases telephone numbers, e-mail addresses, and type of business (grower or dealer). The listings for each state were obtained from members of the National Plant Health Board, an organization representing the plant health regulatory agencies in each state, which in most cases is the state department of agriculture or its equivalent. All commercial growers and dealers of live plants are required to be registered and annually certified for compliance with phytosanitary regulations, so these lists of plant growers can be considered exhaustive to the extent of force of law. Some states made their lists of firms available on a website, whereas others provided it on request. Usable lists of certified nurseries and plant dealers were obtained from all states except Alaska, Montana, and New Mexico; for these states, lists of firms were obtained from the InfoSource USA database. After screening to eliminate duplicate entries and firms no longer in business, the effective population had over 104,000 firms. A total of 32,000 firms were targeted for the survey, including 15,000 grower or grower/dealer firms randomly selected to receive the questionnaire mailed via the U.S. Postal Service, and all 17,000 firms with e-mail addresses who received the survey via e-mail (Internet). Firms to be surveyed via e-mail were removed from the population considered for the mail survey to avoid duplication.

The surveys were distributed during July to Aug. 2014. Following best practices for survey research, an introductory letter was first sent to selected firms to explain the purpose and benefits of the project, and all printed survey materials contained the logos of the sponsoring organizations to enhance the credibility and

legitimacy of the survey (Dillman et al., 2008). Two mailings of the survey questionnaire were sent to firms selected for the mail survey, along with postage-paid return envelopes. Reminder postcards were mailed to respondents about 1 week after each survey mailing. Mailed questionnaires were imprinted with a code number matched to the mailing list, to identify respondents for quality control purposes. Completed surveys were returned to the University of Florida for data entry, cleaning, and initial analysis.

The online version of the survey was implemented at the same time as the mail survey and followed the same general approach. SurveyMonkey® web software (SurveyMonkey.com, Palo Alto, CA) was used to send batch e-mail invitations, record survey responses in security-encrypted form, and track respondents. Three invitations to participate in the survey were made in July and Aug. 2014, with the second and third e-mail invitations sent only to previously nonresponsive firms. Firms were invited to participate in the online survey by clicking a link in the e-mail message directing them to the survey website. Respondents were then explicitly asked for consent to participate in the survey, and were given the option to decline or “opt-out,” as required by laws governing electronic communications. Consenting respondents were asked a qualifying question: “Was your company actively involved in producing and marketing ornamental plants last year (2013)?” Respondents answering this question affirmatively were then directed to proceed with the survey, whereas those answering negatively were thanked and the survey was ended. It should be noted that the online version of the questionnaire and e-mailed letters of invitation closely matched the content of the printed/mailed surveys, except for the initial qualifying question, and some additional questions on retail marketing practices, so the results are comparable. There were questions concerning methods of collecting customer demographics, CLPs, POS usage, and QR code usage that were included in the Internet version of the survey only. A question on the “advertising media used as a percentage of advertising expenses” had the

following possible responses: Internet, yellow pages, radio/television, billboards, gardening publications, catalogs (print or CD), trade journals, newsletters, trade shows, social media, or other. The “other” category included a field for writing in the type of “other” media used. Newspaper was not included in the list of potential responses, so newspaper responses reported in this study are a result of respondents’ write-in responses. This may have resulted in skewed results for newspaper responses.

Results

A total of 32,000 firms were contacted for the survey by both mail and e-mail (Internet) methods. Valid responses were received from 2657 firms, including 1712 (64%) from the mail survey and 945 (36%) from the e-mail survey. A total of 299 (2.0%) of mailed surveys were returned as undeliverable, and 958 e-mail addresses were considered undeliverable. In addition, 377 firms refused to participate (“opted-out”) of the e-mail survey. After deducting the undeliverable and noncompliant firms, the overall response rate for the survey was ≈8%. A summary of general findings from the study can be found in Hodges et al. (2015).

For the purposes of this report, only the 699 firms reporting 100% retail sales (had no wholesale sales) of at least \$1000 per year were evaluated, following the U.S. Department of Agriculture definition of a farm (USDA, 2016). Of those, 247 were returned via the Internet and 452 were returned by mail. Year established, employee numbers, advertising as a percentage of sales, and advertising media as a percentage of advertising expenses were asked in both the Internet and mail surveys (n = 699). Questions concerning methods of collecting customer demographics, CLPs, POS usage, and QR code usage, included in the Internet version of the survey, had 247 respondents (n = 247). For firm size comparisons, we were able to classify 273 of the 699 into four groups based on sales dollar volume: large retailers had sales ≥\$250,000 (n = 32); medium retailers had \$100,000 to \$249,000 in sales (n = 19); small retailers had \$20,000 to \$99,999 in

sales (n = 60), and “hobbyist” retailers had <\$20,000 in sales (n = 162). All analyses were conducted using SPSS (version 22; IBM Corp., Armonk, NY). We compared those four sizes of firms using analysis of variance, comparing the different-sized firms using Dunnett’s T3 significance test.

The oldest retail firm was established in 1843, whereas the youngest was established in 2014; the average age of the retail firms was 24 years. The number of permanent employees ranged from 0 (21.0% of firms) to 600 (0.2%), with a mean of 4.46, median of 1.0, and mode of 1. The total number of seasonal employees ranged from 0 (36.4% of firms) to 150 (0.2%) with a mean of 4.17, median of 1, and mode of 0.

Estimated annual sales ranged from \$1000 (cutoff point below which response was not considered sufficient for this analysis) to \$80 million with a mean of \$540,902, median of \$12,000, and mode of \$5000. Only 20 of 699 firms had online sales, with an average online sales of \$1360, and a range from \$140 to \$160,000. Thus, a very few retail outlets were generating substantial sales revenue online.

Our first objective was to describe the percentage of sales retailers allocate to promotion and advertising, including a breakdown of media used. Some firms reported exceedingly high percentages of sales spent on advertising [n = 14 (2.5%)] possibly due to a misunderstanding of the question, skewing results, so firms reporting greater than 30% of sales expenditure on advertising were removed from only this analysis. The median expenditure as a percentage of sales on advertising was 3.6% (median 2.0%) for all retail firms responding, with 33.7% of firms responding \$0.

In examining the distribution based on media type, the Internet was the most frequently listed by firms [226 firms (32.3%)] with a mean expenditure of 13.7% of total advertising dollars (Table 1). Social media was listed second most frequently [150 firms (21.5%)] with a mean expenditure of 6.4%. Newspapers were listed as the third most frequently used type of media [126 firms (18.0%)]. When examining the types of social media used by respondents,

Table 1. Distribution of type of media used and average percent of advertising budget for retail firms responding (n = 699) to the 2014 Trade Flows and Marketing Survey (Hodges et al., 2015).

Type of media ^z	Firms using media		Mean proportion of budget (%)
	Total responses ^y	Responses (% of total) ^x	
Internet	226	32.3	42.5
Social media	150	21.5	29.6
Newsletter	118 (6)	16.9	32.9
Radio/television	109 (4)	16.2	33.2
Yellow pages	109 (1)	15.7	23.0
Gardening pubs	68	9.7	20.1
Catalogs	60 (1)	8.7	24.8
Billboards	52 (1)	7.6	13.4
Trade shows	52	7.4	7.9
Trade journals	41	5.9	10.8
Other	230	32.9	64.3
Newspaper	126	18.0	
Flyers, brochures, handouts	24	3.4	
Signs (street, road, vehicle, banner, poster, sign)	23	3.3	
Digital (website, blogs, e-mail, Craigslist, eBay, listing on other's websites, etc.)	21	3.0	
Direct mail	21	3.0	
Magazines	15	2/1	
Directory/program (chamber of commerce, home owners association, farm bureau, event program)	10	1.4	
Word of mouth	9	1.3	
Shoppers	7	1.0	
Events (county fair, flower show, parade of homes, sponsorships)	7	1.0	
Business cards	6	0.9	
Free articles in Newspaper or radio	3	0.4	
None	8	1.1	

^zCraigslist (San Francisco, CA), eBay (San Jose, CA).

^yAdditional responses in parentheses were write-ins in the "other" category.

^xTotal percentage exceeds 100% due to multiple responses on types of media used.

we report a percentage of social media type from all write-in responses and a percentage of social media type from all respondents (Table 2). Facebook [60.0% (from the write-ins), 17.6% (from the responses to the category)] far exceeded any other type of social media. Twitter [11.2% (from the write-ins), 3.3% (from the responses to the category)] and websites [7.3% (from the write-ins), 2.1% (from the responses to the category)] were distant second and third choices of types of social media.

Since newspapers were not listed as an option in the survey and respondents had to write in newspapers as an "other" type of advertising media, results were potentially skewed and newspapers may have received a lower overall mean expenditure in this survey. The percent mean expenditure for the entire "other" category was 64.3%; over half of which (54.8%) was from newspaper advertising. Newsletters, radio/television,

and yellow pages were used by similar numbers of firms (118, 105, and 110, respectively) with 32.9%, 33.0%, and 23.0% mean expenditure, respectively. If the digital responses were combined [Internet, social media, and digital responses from the "other category" such as websites, blogs, Craigslist (San Francisco, CA)], the total number responses from firms listing a digital type response was 397 (56.8%) of all firms. This is less than the total number of responses listing some type of print media, such as newspaper, yellow pages, newsletter, gardening publications, direct mail [609 (87.1%)]. Newsletters, yellow pages, and gardening publications were not categorized as print vs. digital, so a large percentage of these responses are potentially digital, but there is no way to distinguish digital from print in the data collected.

Our second objective was to describe the POS materials used. Almost all of the total respondents, 96.8%

(239), reported the use of POS materials. Of those, 56.9% (136) made their own materials, 18.8% (45) received materials free from a supplier, 20.9% (50) purchased materials from a supplier, while 13.8% (33) purchased materials from another source.

Our third objective was to describe the use of QR or smart codes. Of the total firms analyzed here, 2.8% (7) reported using QR codes. Of those, four reported creating them and three reported that the codes were supplied. These low results are not surprising given anecdotal comments from horticultural printing companies at various trade shows.

Objective four was to gain a better understanding of how firms used CLPs. Only 48 (19.8%) reported having a CLP. Of those, 45.8% (22) used customer purchase cards, whereas 35.4% (17) used POS software.

Our fifth objective was to better understand the methods retailers use

Table 2. Types of social media listed as “write-in” responses (n = 205) by retail respondents to the 2014 Trade Flows and Marketing Survey (Hodges et al., 2015).

Type of social media ^z	Write-in responses		Total responses for advertising media (%) ^y
	No.	%	
Facebook	123	60.0	17.6
Twitter	23	11.2	3.3
Website	15	7.3	2.1
Pinterest	8	3.9	1.1
Craigslist	8	3.9	1.1
Instagram	7	3.4	1.0
Blogs	4	1.9	0.6
LinkedIn	4	1.9	0.6
E-mail	3	1.5	0.4
E-mail newsletter	2	1.0	0.3
Front Porch Forum	2	1.0	0.3
Flickr	1	0.5	0.1
Foursquare	1	0.5	0.1
Etsy	1	0.5	0.1
Online yard sale	1	0.5	0.1
Flea market	1	0.5	0.1
Chamber of commerce	1	0.5	0.1
Total		100	29

^zFacebook (Menlo Park, CA), Twitter (San Francisco, CA), Pinterest (San Francisco, CA), Craigslist (San Francisco, CA), Instagram (Menlo Park, CA), LinkedIn (Mountain View, CA), Front Porch Forum (Burlington, VT), Flickr (San Francisco, CA), Foursquare (New York, NY), Etsy (Brooklyn, NY).

^yn = 699.

to collect customer demographics. Collection of demographic information can be helpful in developing a marketing plan. Nearly 33% of the firms collected demographic information about their customers. Of those, the method with the highest percentage use (multiple responses were permitted) was social media (50.7%) followed by CLP (48.9%), web visits (34.5%), questionnaires (15.7%), social coupons (13.5%), census data (3.9%), and marketing firms (3.1%). The Internet plays a role in many of the retail firms’ methods for collecting customer demographics.

FIRM SIZE COMPARISONS. Finally, we made comparisons among 262 retail-only firms (who reported the percentage of sales spent on advertising <30%) segregated by annual sales into four categories. We classified hobby retailers as having sales of \$1000 to \$19,999 (n = 157); small retailers had sales of \$20,000 to \$99,999 (n = 56); medium firms had sales between \$100,000 and \$249,999 (n = 19); and large firms had annual sales of ≥\$250,000 (n = 30).

Hobby and small firms were ≈14 years younger than medium or large firms (Table 3). Although there was tremendous variance in the number

of total, permanent, and seasonal employees, we found a difference only for seasonal employees. On average, large firms employed 12.3 seasonal employees, whereas the hobby, small-, and mid-sized firms employed half that or less. Average sales per employees was substantially higher for large firms, but hobby, small, and mid-sized firms were statistically similar.

Examining advertising expenditures as a percentage of total sales, we found no difference among the four retail firm sizes with firms spending, on average, 3.02% to 5.06% of sales on advertising with no difference in the percentage spent on different outlets. Among the various methods of advertising expenditures, we found no differences by firm size. Companies of different sizes spent about the same percentage of advertising expenditures on yellow pages, radio/television, billboards, gardening publications, trade journals, newsletters, trade shows, or other media.

Firms used a variety of means to capture consumer demographics. The different-sized firms used questionnaires, the U.S. census, and marketing firms similarly. However, a higher percentage of larger firms used web visits, social coupons, and

social media compared with mid-sized, small-sized, and hobby retailers (Table 4). A similar percentage of different-sized firms had a CLP (Table 4). There was no difference between firm sizes in the use of POS materials, except that medium- and large-sized firms were more likely to purchase POS materials from other sources. We also found no difference by firm size for the use of QR codes.

Discussion

Online connectivity with current/future/potential customers has revolutionized how green industry (and other) firms communicate with people. Social media outlets are potential sources of market intelligence (Bolton et al., 2013). Green industry firms reporting 100% retail sales with total sales greater than \$1000/year (i.e., the group studied in this paper) are becoming aware of the power of social media and harnessing it. Of the total responses, 16.6% are using social media to collect customer demographics, which is more than any other mechanism for collecting consumer information. Web visits, another Internet source, was listed by 11.3% of respondents, bringing the total of Internet-based methods to 28.9%. These findings would logically follow from the high BCR for the Internet reported by Palma et al. (2012). But, with no difference in the allotment of advertising funds spent on different advertising media by firm size, it would appear as though firms of all sizes realize and are beginning to embrace the power of the Internet.

The Internet is also the most popular advertising medium among green industry retailers (226 responses with mean expenditure of 42.5%). Social media (150 responses with mean expenditure of 29.6%) is also strong and among social media platform; Facebook (60%) far exceeds any other platform. Purely digital forms of advertising media were used by 56.8% of firms. More traditional media (radio/television, newsletters, catalogs, yellow pages, and gardening publications) are still popular among green industry retailers and in total were used by 87.1% of firms responding. Social media is becoming a powerful marketing force. Trusov et al. (2009) showed that referrals on social network sites have substantially longer carryover effects than traditional

Table 3. Analysis of variance and comparison of 262 retail-only firms segregated by annual sales: hobby retailers had sales of \$1000 to \$19,999 (n = 157); small retailers had sales of \$20,000 to \$99,999 (n = 56); medium firms had sales between \$100,000 and \$249,999 (n = 19); and large firms had annual sales of ≥\$250,000 (n = 30).

Question	Retail firm size				P
	Hobby (n = 157)	Small (n = 56)	Medium (n = 19)	Large (n = 30)	
Mean year established	1995 a ^z	1994 a	1981 b	1978 b	0.000
Mean total employees	9.6	13.5	25.5	27.3	0.638 ^{NS}
Mean permanent employees	6.2	1.5	6.8	8.3	0.891 ^{NS}
Mean seasonal employees	1.5 a	3.9 ab	6.2 a	12.3 b	0.000
Mean sales per employee	\$3,011 a	\$19,736 b	\$22,757 b	\$590,928 b	0.0003
Advertising expenditures as a percent of sales	3.02	3.53	5.06	4.63	0.914 ^{NS}
Percent of advertising expenditures on Internet sales	51.26	36.27	19.00	34.00	0.144 ^{NS}
Percent of advertising expenditures on yellow pages	14.58	26.29	21.25	19.20	0.885 ^{NS}
Percent of advertising expenditures on radio/television	29.44	32.78	53.33	42.40	0.496 ^{NS}
Percent of advertising expenditures on billboards	9.6	20.0	0	6.33	0.595 ^{NS}
Percent of advertising expenditures on gardening publications	24.69	0.25	46.67	14.17	0.345 ^{NS}
Percent of advertising expenditures on print catalogs	24.69	33.34	30.50	29.60	0.976 ^{NS}
Percent of advertising expenditures on trade journals	17.0	7.5	0	0	0.712 ^{NS}
Percent of advertising expenditures on newsletter	33.05	45.6	40.67	9.4	0.411 ^{NS}
Percent of advertising expenditures on trade shows	7.58	20.0	10.0	10.0	0.734 ^{NS}
Percent of advertising expenditures on other media	31.6	37.27	20.67	14.0	0.442 ^{NS}

NS = not significant.

^zLetters in row show statistically significant differences at $P < 0.10$ using Dunnett's T3 significance test.

advertising and produce substantially higher response elasticities. Overall, user-generated content (UGC), the type developed through social media, exhibits a stronger impact than marketer-generated content (MGC), more traditional advertising, on consumer purchase behavior (Goh et al., 2013). Small firms, not surprisingly, were just as likely to use social media or the Internet for advertising as large firms. However, large firms were more likely to use digital media for collecting customer demographic information. Green industry retailers have started to and should continue following marketing trends and harnessing the marketing power of social networking.

A POS display is a specialized form of sales promotion located in the retail space. It is intended to draw the customers' attention to products or special events. POS displays can include shelf edging, display stands, mobiles, posters, and banners. Due to their appealing and informative

nature, POS materials are capable of stimulating purchases directly at the point of sale. Almost all (96.8%) of green industry retail respondents use POS materials. Most of them are making their own materials (56.9%), although they also receive POS materials free from a supplier (18.8%), purchase POS materials from a supplier (20.9%), or purchase POS materials from another source (13.8%) with medium- and large-sized firms being more likely to purchase materials from other sources.

QR code content should be carefully crafted to provide meaningful, usable information for involved consumers, which is relevant, interesting, and easily passed on to other consumers (Atkinson, 2013). A very small percentage of green industry retail respondents (2.8%) reported using QR codes for retail sales with no difference by firm size. QR codes have the potential to alter consumers' purchases at the point of purchase. When retailers offer a special

promotion, they must alert the consumer to the promotion. Advertising through traditional means forces the consumer to remember the promotion and act on it later. The most important time to alert a consumer to a promotion is when they are in the store, interested in specific merchandise, but have not yet decided to purchase that merchandise. POS materials can serve this promotional function, but require printing and display—additional costs and steps. Electronic customer loyalty cards can track customer purchases and offer promotions on desirable items but discounts or promotions are applied either after the purchase decision has been made—at the cash register—or for future purchases. QR codes can target information on promotions to consumers while they are shopping, offering on-the-spot incentives or the ability to price compare in the store.

Typically, a distinction is made between push and pull mobile

Table 4. Chi square analysis of 262 retail-only firms on their method of collecting customer demographics, and use of loyalty programs, point-of-sale materials, and quick response (QR) codes segregated by annual sales: hobby retailers had sales of \$1000 to \$19,999 (n = 157); small retailers had sales of \$20,000 to \$99,999 (n = 56); medium firms had sales between \$100,000 and \$249,999 (n = 19); and large firms had annual sales of > \$250,000 (n = 30).

Question	Retail firm size				P
	Hobby (n = 157)	Small (n = 56)	Medium (n = 19)	Large (n = 30)	
Used questionnaires	4.3	10.0	5.3	9.4	0.385 ^{NS}
Used U.S. census	0.6	1.7	5.3	0.0	0.271 ^{NS}
Used marketing firm	0.6	0.0	5.3	0.0	0.108 ^{NS}
Used web visits ^z	8.6	3.3	15.8	28.1	0.002
Used social coupons ^z	1.2	0.0	0.0	15.6	0.000
Used social media ^z	9.3	13.3	21.1	50.0	0.000
Used customer loyalty program	13.0	15.0	15.8	28.1	0.193 ^{NS}
Percent of firms having a customer loyalty program	1.9	6.7	10.5	6.3	0.136 ^{NS}
Use point-of-sale software	0.6	3.3	5.3	6.3	0.138 ^{NS}
Use point-of-sale materials	22.8	13.3	21.1	20.5	0.480 ^{NS}
Make point-of-sale materials	19.1	13.3	21.1	18.8	0.762 ^{NS}
Receive point-of-sale materials from supplier	4.9	3.3	5.3	12.5	0.300 ^{NS}
Purchase materials from supplier	5.6	5.0	5.3	6.3	0.996 ^{NS}
Purchase materials from other source ^z	3.1	1.7	10.5	12.5	0.038
Use QR codes	2.5	0.0	5.3	3.1	0.501 ^{NS}

NS = not significant.

^zChi square analysis showed a significant difference in the proportion of each size of firm for the listed question.

advertising (Bamba and Barnes, 2007; Barnes, 2002). Push advertising describes messages that are initiated by the advertiser, whereas pull advertising refers to communication of promotional material initiated by the consumer (Unni and Harmon, 2007). Push advertising is sent by the marketer to individual consumers, usually after they have completed a one-time opt in to receive such messages. They might take the form of a text message, for example, sent by an advertiser announcing a sale on a particular brand. Although the consumer has elected to receive these kinds of messages (mobile ads), they may or may not be deemed useful. Depending on various contextual factors, the mobile ad might be considered more distracting and bothersome than useful. Pull advertising, on the other hand, refers to communication that is sent by advertisers at the direct request of the consumer. The shopper might be in the bedding plant section of the garden center, for example, and notice an on-shelf promotional announcement inviting the consumer to visit a web site or download a coupon. Given the shopper’s spatial-temporal context of being in the store at the very moment they are considering bedding plants, this kind of marketing communication is usually perceived as more relevant and meaningful (Atkinson, 2013). In

today’s rapidly changing technological environment, QR codes are being replaced by texting options. Retailers should therefore consider a variety of mobile-centric technologies.

A CLP is a rewards program offered by a company to customers who frequently make purchases. A loyalty program may give the customer free merchandise, rewards, coupons, or even advance released products (Kolowich, 2015). CLPs are designed to develop a relationship between a business and a consumer. The goal should be to attract the right customers and create profitable long-term relationships. According to the 2015 Colloquy Customer Loyalty Census, American households hold memberships in an average of 29 loyalty programs, but are active (meaning earn or redeem at least one per year) in only about 12 of them (Colloquy, 2015). Most CLPs are based on accumulating points or dollars spent with a reward at a preset volume of business. In fact, 73% of loyalty programs are point based [selfstarttr.com; Selfstarttr (2016), Jacksonville, FL]. A higher percentage of larger firms in this study used a CLP; it may take time to realize the benefits of these programs and generate the resources to offer them. Tiered programs allow the business to provide advanced

rewards for larger purchase quantities. Customer purchase cards, sometimes called punch cards, have traditionally been used by bricks and mortar businesses, but are not very adaptable to e-commerce. This was the method used by about half (45.8%) of green industry retailer respondents with a CLP, with no difference by firm size.

POS software was being used to track customer purchases by 35.4% of respondents with a CLP. CLPs also offer the benefit of collecting marketing data from customers. CLPs (16.0%) were the second most frequently cited method for collecting customer demographic information of all respondents in the study. Close to 20% of respondents had a CLP, which means 80% are missing out on the opportunity developed in this type of relationship with customers.

Green industry retailers are currently using social media for marketing green industry goods. But, they have much more opportunity to use electronic media for CLPs and to begin using mobile-centric technologies to deliver in-store promotional information to consumers. This study helps document the current retail plant centers’ advertising practices and expenditures in the 21st century. It also provides a glimpse into their consumer research practices, especially the use

of CLPs and methods for profiling consumer demographics.

Larger firms were more likely to use websites, social coupons, and social media. This represents an opportunity for small- to medium-sized firms who could benefit from the use of these media and more than ever have equal access to the technology as large firms.

Future research should continue to monitor the use and impact of online advertising, especially the use of social media and the ever-changing platforms for communication. Additionally, future work should monitor the changes in more traditional media (e.g., newspaper, television, radio) to determine if their use continues to decline.

Literature cited

Atkinson, L. 2013. Smart shoppers? Using QR codes and 'green' smartphone apps to mobilize sustainable consumption in retail environment. *Intl. J. Consum. Stud.* 37:387–393.

Bagwell, K. 2005. The economic analysis of advertising. Columbia Univ. Dept. Econ. Discussion Paper Ser. No. 0506-01. 3 Nov. 2016. <https://academiccommons.columbia.edu/.../econ_0506_01.pdf>.

Bamba, F. and S.J. Barnes. 2007. SMS advertising, permission and the consumer: A study. *Business Process Mgt. J.* 13:815–829.

Barnes, S.J. 2002. Wireless digital advertising: Nature and implications. *Intl. J. Advert.* 21:399–420.

Bolton, R.N., A. Parasuraman, A. Hoefnagels, N. Migchels, S. Kabadayi, T. Gruber, Y. Komarova, and L.D. Solnet. 2013. Understanding generation Y and their use of social media: A review and research agenda. *J. Serv. Mgt.* 24(3):245–267. 24 July 2016. <<http://dx.doi.org/10.1108/09564231311326987>>.

Boyd, D.M. and N.B. Ellison. 2008. Social network sites: Definition, history and scholarship. *J. Comput. Mediat. Commun.* 13:210–230.

Carlton, D.W. and J.M. Perloff. 1999. *Modern industrial organization*. 3rd ed. Addison-Wesley, Boston, MA.

Chaffey, D. 2016. Mobile marketing statistics compilation. 25 July 2016. <<http://www.smartinsights.com/mobile-marketing/mobile-marketing-analytics/mobile-marketing-statistics>>.

Colloquy. 2015. U.S. customer loyalty program memberships top 3 billion for first time, 2015 colloquy census shows. 21 June 2016. <<https://www.colloquy.com/latest-news/2015-colloquy-loyalty-census/>>.

Dillman, D.A., J.D. Smith, and L.M. Christian. 2014. *Internet, phone, mail, and mixed-mode surveys: The tailored design method*. John Wiley & Sons, Inc., Hoboken, NJ.

Duggan, M., N. Ellison, C. Lampe, A. Lenhart, and M. Madden. 2015. *Social media update 2014*. Pew Res. Ctr., Washington, DC.

Dukes, E. 2014. 4 ways technology has changed the modern workplace. 3 Nov. 2016. <<https://www.iofficecorp.com/blog/4-ways-technology-has-changed-the-modern-workplace>>.

Goh, K.Y., C.S. Heng, and Z. Lin. 2013. Social media brand community and consumer behavior: Quantifying the relative impact of user- and marketer-generated content. *Inf. Syst. Res.* 24:88–107.

Hall, C.R. 2010. Making cents of green industry economics. *HortTechnology* 20:832–835.

Hanna, R., A. Rohm, and V.L. Crittenden. 2011. We're all connected: The power of the social media ecosystem. *Bus. Horiz.* 54:265–273.

Hodges, A.W., C.R. Hall, M.A. Palma, and H. Khachatryan. 2015. Economic contributions of the green industry in the United States in 2013. *HortTechnology* 25:805–814.

Kolowich, L. 2015. 7 customer loyalty programs that actually add value. 21 June 2016. <<http://blog.hubspot.com/blog/tabid/6307/bid/31990/7-Customer-Loyalty-Programs-That-Actually-Add-Value.aspx#sm.00hpod0a15jie7010an1j9i6irkf>>.

Krishnamurthy, S. and W. Dou. 2008. Advertising with user-generated content: A framework and research agenda. *J. Interactive Mktg.* 8:1–7.

Lane, N. 2010. White paper on the USmA: The United States of mobile advertising. 21 June 2016. <http://www.mvndynamics.com/wp-content/uploads/2010/11/smaato_whitepaper_usma_11022010.pdf>.

Mobile Marketing Association. 2009. MMA updates definition of mobile marketing. Mobile Marketing Assn., New York, NY.

Nielsen. 2013. The paid social media advertising report. 25 Aug. 2016. <<http://www.nielsen.com/us/en/insights/reports/2013/the-paid-social-media-advertising-report-2013.html>>.

Ort, J., B. Wilder, and J. Graham. 1998. Economic and socioeconomic factors affecting consumer purchases of fall nursery products. North Carolina Coop. Ext. Serv., North Carolina Assn. Nurserymen, North Carolina Dept. Agr. Consumer Serv. Bul. 15.

Palma, M.A., C.R. Hall, B. Campbell, H. Khachatryan, B. Behe, and S. Barton. 2012. Measuring the effects of firm promotion expenditures on green industry sales. *J. Environ. Hort.* 30:83–88.

Rohm, A.J. and F. Sultan. 2006. An exploratory cross-market study of mobile marketing acceptance. *Intl. J. Mobile Mktg.* 1:4–12.

Safley, C., M. Wohlgenant, and C. DiRienzo. 1999. Factors affecting consumer purchase of fall nursery products. Dept. Agr. Res. Econ., North Carolina State Univ. Bul. 19.

Selfstartr. 2016. The beginner's guide to customer loyalty programs. 21 June 2016. <<https://selfstartr.com/customer-loyalty-programs/>>.

Shin, D.H., J. Jung, and B.H. Chang. 2012. The psychology behind QR codes: User experience perspective. *Comput. Human Behav.* 28:1417–1426.

Trusov, M., R.E. Bucklin, and K. Pauwels. 2009. Effects of word-of-mouth versus traditional marketing: Findings from an Internet social networking site. *J. Mktg.* 73:90–102.

Unni, R. and R. Harmon. 2007. Perceived effectiveness of push vs. pull mobile location-based advertising. *J. Interact. Advert.* 7:48–71.

U.S. Department of Agriculture. 2016. Glossary. 2 Nov. 2016. <<http://www.ers.usda.gov/topics/farm-economy/farm-household-well-being/glossary.aspx>>.

Waters, R.D., E. Burnett, A. Lamm, and J. Lucas. 2009. Engaging stakeholders through social networking: How non-profit organizations are using Facebook. *Public Relat. Rev.* 35:102–106.