An Examination of the Use of E-Marketing by Small Farms in the Northeast

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Internet use has grown significantly in the U.S. and around the world in the last few years. Many businesses, including many food-related businesses, consider it imperative to have an online presence for "e-marketing" and/or "e-sales." Farmers, especially those selling agricultural products directly to consumers, may also find it advantageous to use the Internet for communicating with customers, providing information regarding their farm or products, or selling over the web. However, very little is known about how direct-market farmers are using the Internet as part of their marketing strategy. This research provides much-needed information in this area to guide future use of the Internet for small-farm e-marketing.

The National Agricultural Statistics Service (NASS) has been tracking Internet access and usage by farmers since 2001. In its 2005 report NASS found that Internet access continued to increase, with 51% of U.S. farms currently having Internet access and 9% conducting some type of agricultural marketing activities over the Internet.[1] The Western region[2] had the highest percentage (62%) of farms with Internet access, followed by the Northeast[3] (55%), and large farms (annual sales and government payments $250,000 or greater) had a higher percentage (72%) of Internet access compared to smaller farms (49%). The Northeast region had the highest percentage of farms conducting some agricultural marketing activities over the Internet (11%). Across the U.S., dial-up is the primary method of Internet access for those farm operators who have access (69%), with the Northeast leading in DSL access (16%) and cable access (9%).

An early look at e-commerce use in agriculture found wineries and small farms in California which were offering business-to-consumer (B2C) transactions online (Mueller 2000). Mueller (2000) also discussed the emergence of e-commerce intermediaries such as match-makers, directory service, and market-place providers, although he did not focus on direct marketing. A multi-state group is working on a variety of projects related to e-commerce in food and agriculture, including analysis of e-groceries, e-commerce for specialty foods, and quality management in fresh produce via e-agribusiness (E-Agribusiness Working Group 2005). They have not thus far focused their research on small-farm direct marketers. Members of the E-Agribusiness Working Group have also developed materials for educators regarding e-marketing in agriculture (Ernst and Hooker 2002). Several publications are available to help farmers learn how to market their products over the Internet; these include case studies and examples from several real farm businesses (Adam, Balasubrahmanyam, and Born 1999; Frain 2003; Klotz 2002), but do not provide an overview of current Internet use for marketing by small farms.

Methods

A survey was used to examine the use of e-marketing by small farms. A list of direct-market farmers from the Northeastern U.S. was created using national online farm directories, state department of agriculture directories, trade association web sites, and other online searches. Letters requesting participation were mailed in April of 2005 to 5,392 direct market farmers in 12 states throughout

[1]Agricultural marketing activities include direct sales of commodities, online crop and livestock auctions, online market-advisory services, commodity price tracking, etc. (NASS 2005).

[2]The NASS Western region includes AZ, CA, CO, ID, MT, NV, NM, OR, UT, WA, and WY.

[3]The NASS Northeast region includes CT, ME, MA, NH, NJ, NY, PA, RI, and VT.

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the Northeast[4]; 987 returned the letter, indicating a willingness to participate either online or using a mailed questionnaire. An email which included a link to the online questionnaire along with a unique access code was sent to 583 individuals; 346 respondents completed the survey over the Internet. A paper questionnaire was mailed to 404 farms, and 300 completed surveys have been received. A reminder postcard was mailed to the farms requesting a paper survey, and 2 email reminders were sent to those who had agreed to complete the survey online but had not yet done so. The completion rate was higher for the paper survey (74%) than for the online version (59%). Questionnaires were eliminated if more than half was incomplete or if the respondent indicated no direct market sales. Data from 646 completed questionnaires are presented, although not all questions were answered on every survey.

Results

All 12 states in the Northeast region are represented. Table 1 shows the total number of farms responding from each state, along with a breakdown by website use. The percentage of direct market farms refers to the number of farms listed in the 2002 U.S. Department of Agriculture Agricultural Census as having sold agricultural products directly to individuals for human consumption. The majority (56%) of farms responding were direct marketers with more than 75% of total farm sales direct to consumers. Nineteen percent of respondents had total farm sales less than 25% direct to consumers, 11% of the farms sold between 25% and 50% direct to consumers, and 14% of the farms sold between 51% and 75% direct to consumers.

More than half (59%) of the responding farms did not have a website for their farm business. The most frequently cited reason (34%) was a lack of skills or money to develop a web page[5]; a lack of time was also an important factor (Table 2). About half of the farms offered agri-tourism activities and/or services, the most popular being educational displays or tours (Table 3). The percentage of farms with agritourism activities was higher for farms with websites (64%; n=261) than for farms without websites (40%; n=379). This is not surprising, as a website is an important advertising medium for tourist-dependent businesses. Travel industry studies show that 64% of consumers use

[4]The SARE Northeast region includes CT, ME, MA, NH, NJ, NY, PA, RI, VT, DE, MD, and WV.

[5]Web page and website are used interchangeably although technically they are not the same thing, as a website might contain several web pages.

Table 1. Survey Responses by State.

State	With website	Without website	Total	% of direct-market farms
Connecticut	9	16	25	2.9
Delaware	1	3	4	2.0
Maine	7	15	22	1.5
Maryland	20	32	52	4.5
Massachusetts	17	36	53	4.2
New Hampshire	15	28	43	5.7
New Jersey	7	10	17	1.0
New York	79	85	164	3.5
Pennsylvania	42	83	125	2.1
Rhode Island	1	2	3	1.7
Vermont	25	29	54	4.6
West Virginia	35	32	67	4.7
Total	258	371	629	3.2% of 19,476

Table 2. Reasons for No Farm-Business Website (n=322).

Reason	% of farms with no website
Do not have the skills or money	34.2
Have not found the time	31.1
Website is not appropriate	17.4
Other	5.6
Poor Internet access	5.0
Coming soon	2.8
Listed in a directory	2.5
All of the above	1.8

Table 3. Agri-Tourism Activities in 2004 (n=324).

Activity	% of agri-tourism farms
Educational display or tour	64.2
Holiday light display	27.8
Wagon rides	22.2
Farm-work activities	19.1
Other	18.8
Children's area/activities	17.6
Fishing or hunting	16.4
Hiking or biking trails	11.7
Restaurant or bakery	11.1
Bed and Breakfast	6.2
Corn maze	5.6
Horseback riding	3.4
Haunted house	1.5

the Internet to plan their travel (Eckert 2004).

The farms surveyed produced and sold a variety of products in 2004. A greater percentage of farms without a website sold produce (63%) than did farms with a website (54%), with a similar result for the meat, dairy, and eggs category: 49% of farms without a website compared to 41% of farms with a website. The reverse was seen for the ornamentals and miscellaneous categories. A higher percentage of farms with a website (30%) sold ornamentals in 2004 compared to farms without a website (23%), and 52% of farms with a website sold miscellaneous farm products, compared to 41% of farms without a website. Table 4 shows the products sold in 2004 for farms with and without a website.

The farms surveyed used a variety of methods to sell their products in 2004. The percentages of farms selling at farmers markets, at roadside stands or tailgates, and via home delivery were higher for farms without a website. Table 5 gives the break-down of sales methods/locations for farms with and without a website. Farms without a website spent less on advertising to promote their farm businesses in 2004 (Table 6). Perhaps the higher advertising expenditures for farms with websites are a result of development and maintenance of the website, although a variety of advertising methods was used by both types of farms.

Table 4. Products Sold in 2004.

Product	% of farms with a website (n=261)	% of farms without a website (n=381)
Produce	54.0	62.8
Tree fruits	18.4	13.9
Berries	15.3	15.7
Vegetables	37.5	41.7
Herbs	20.7	21.0
Mushrooms	1.1	2.9
Other	13.4	15.5
Meat, dairy and eggs	41.4	48.5
Beef	12.3	18.1
Pork	5.0	6.3
Lamb	14.2	14.4
Goat meat	5.7	4.2
Heritage meats	1.9	0.5
Poultry	8.0	10.2
Eggs	16.1	23.9
Dairy products	6.9	6.3
Other	8.4	5.0
Miscellaneous	52.1	41.2
Wool/hair	16.1	11.8
Honey	11.1	10.3
Cider	8.8	4.1
Baked goods	13.5	9.6
Wine	4.5	0.2
Maple syrup & products	10.7	8.8
Other	16.1	13.9
Ornamentals	29.9	22.7
Bedding plants & nursery	16.5	10.5
Christmas trees/wreaths	14.2	11.8
Cut flowers	16.9	14.7
Other	7.3	4.2

Gross farm sales in 2004 were generally higher for farms with websites than for farms without websites. Sixty-eight percent of farms with websites had gross farm sales between $5,000 and $250,000 in 2004, whereas 69% of farms without websites had gross farm sales between $1,000 and $50,000. Future research will examine whether use of a website increases sales as well as whether farms with higher sales are more likely to have a website. Table 7 shows the breakdown of 2004 sales for farms with and without websites. A higher percentage of farms with a website received more than 75% of their total household income from their farm business in 2004 (29%) than did farms without a website (14%). Farms without a website had higher percentages in the less-than-25% of total household

Table 5. Sales Locations/Methods in 2004.

Location/method	% of farms with a website (n=256)	% of farms without a website (n=381)
Roadside stand or tailgate	11.3	18.7
Farmers market	28.1	34.8
Pick-your-own	27.3	20.0
Mail order	7.8	3.4
Restaurant	17.6	14.8
CSA (Community Supported Agriculture)	12.1	11.3
Farm stand or store	54.7	48.3
Flea market	2.3	2.1
Home delivery	12.5	18.2
Internet orders	35.2	4.7
Grocery store	21.5	21.3
Wholesaler/broker	23.8	19.8

Table 6. Advertising Expenditures in 2004.

Advertising expenditures	% of farms with a website (n=259)	% of farms without a website (n=376)
Zero	3.9	29.4
$1 to $199	22.0	37.8
$200 to $499	18.9	17.2
$500 to $999	11.9	6.3
$1000 to $1499	7.7	3.2
$1500 to $1999	4.6	2.1
$2000 or more	31.0	4.0

Table 7. Gross Farm Sales in 2004.

Gross farm sales	% of farms with a website (n=247)	% of farms without a website (n=368)
Less than $1,000	2.8	7.1
$1,000 to 2,499	5.7	12.2
$2,500 to 4,999	5.3	12.5
$5,000 to 9,999	8.5	10.6
$10,000 to 24,999	17.4	21.5
$25,000 to 49,999	15.4	12.0
$50,000 to 99,999	10.9	8.7
$100,000 to 249,999	15.8	8.7
$250,000 to 499,999	4.5	4.1
$500,000 to 999,999	5.3	1.1
$1 million or more	8.5	1.6

income from the farm category (51%), the 25%-to-50% category (21%), and the 51%-to-75% category (8%) compared to farms with a website: 41%, 18%, and 7%, respectively. Four percent of farms with a website claimed to get none of their household income from the farm compared to 5% of farms without a website.

Education levels were higher for respondents from farms with a website than from farms without a website. Thirty-seven percent of farm operators with a website had a bachelor's degree and 30% had a graduate or professional degree, compared to 31% and 25%, respectively, for farm operators without a website. For farms without a website 29%, had some college or an associates degree and 17% were high school graduates or less, compared to 23% and 10%, respectively, for farms with a website.

Farms with websites were more likely to use high-speed Internet access such as DSL or cable (36%) than were farms without a website (22%). Dial-up was the most common method of Internet access used by both groups: 57% of farms with websites and 58% of farms without websites. Fifteen percent of the farms without websites said they do not use the Internet, whereas only 0.8% of farms with websites claimed not to use the Internet.

Information was gathered from farms with websites regarding development and design along with characteristics of their websites. The most frequent response (31%) was that a professional web page developer put together the website used by the farm business in 2004. This was followed by the farm owner/operator (26%), a family member (21%), a friend (11%), other (9%), and an employee (2%). "Other" included CSA members or customers who had web-design expertise and who received farm products in return. The average amount paid to a professional to develop the farm's web page was $2,152 (n=67), and the average year the website was developed was 2001 (n=67). When asked how the farm business web page was developed, 44% used a professional web-page developer, 41% used an "other" method (including specific website software and writing HTML code), 16% followed a template provided by a general web-page host, 3% followed a template provided by a farm-directory web site, 2% developed their web page at a workshop for a fee, and only 1% developed their web page at a free web-development workshop.

Maintaining the farm's website takes on average 1.2 hours per week (n=225). The farm operator was most frequently mentioned as maintaining the website (35%), followed by a family member (24%), a professional web developer (22%), a friend (8%), an "other" individual (6%) and an employee (6%). Table 8 presents details on how often the farm's website is updated.

Ninety-five percent of the websites provide a way to directly email the farm, but only 30% have a way that customers can register with the business in order to receive emails or notices from the farm. Most of the web pages provide information about

Table 8. Frequency of Website Updates.

Frequency	% of farms (n=242)
Daily	6.6
Weekly	11.5
Monthly	13.5
Quarterly	20.7
Two times per year	9.1
Annually	15.6
Every other year	2.9
Occasionally	4.5
As needed	7.4
Hardly ever	4.1
Never updated	4.9

the farm's products (93%) and give background information about the farm (91%). A majority provide hours, days, or months of operation (66%), a map to the business or a link to a mapping service (56%) and pricing information for the products (53%). Almost half give regular updates about what is going on at the farm (49%) and information about where the products can be purchased (48%). Fewer farms (n=128) provide specialized features on their farm-business web page compared to the above information (n=253). Specialized features are presented in Table 9.

Farms with websites were asked if they sold any of their products by taking orders over the Internet in 2004; 46% responded affirmatively. Of these farms (n=118), 28% hired a professional web-business developer to set up their Internet-sales operation, 31% used an Internet payment service (such as PayPal®), and 28% processed credit card payments over the Internet in 2004. Internet sales do not appear to be of major importance to most of these farms, as 72% received less than 25% of gross farm sales over the Internet in 2004 and 3% said they received none. Sixteen percent were in the 25%-to-50% of gross farm sales category, 3% were between 51% and 75%, and 8% earned over 75% of their gross farm sales over the Internet in 2004.

Conclusion

A survey of direct-market farms in 12 Northeast states examined their use of the Internet for e-marketing. A majority of the farms surveyed had no website for their business. Farms with websites generally had higher levels of gross farm sales than did farms without websites. A higher percentage of farms with websites earned more than 75% of their household income from the farm than did farms without websites. Respondents from farms with websites generally had higher education levels than did those not using a website for their farm business. Farmers used a variety of methods and personnel to develop their websites. Most websites provide a way to email the farmer in addition to information on products and the farm. A majority provided times of operation, directions, and prices. More than 40% of the farms with websites took orders over the Internet for their products in 2004.

Although the percentage of direct-market farms surveyed in any one state was small, the variety of farms with respect to location, products, services, size, sales methods, and farm and farmer characteristics was significant, providing a valuable snapshot of the current state of e-marketing on direct-market farms in the Northeastern U.S. Future research will analyze the characteristics of farms, farmers, products, etc. associated with adopting a website as an e-marketing tool and factors related to the level of gross farm sales will also be analyzed.

References

Adam, K., R. Balasubrahmanyam, and H. Born. 1999. *Direct Marketing*. Business Management Series, Appropriate Technology Transfer for Rural Areas (ATTRA). http://www.attra.ncat.org/attra-pub/PDF/directmkt.pdf, accessed 20 October 2005.

E-Agribusiness Working Group. 2005. *Projects*. http://aede.osu.edu/programs/e-agbiz/pageprojects/index.html, accessed 20 October 2005.

Eckert, J. 2004. "Web Sites Are No Longer Optional for Farm Marketing." *The Vegetable Growers News* 38(5):24.

Ernst, S and N. H. Hooker. 2002. *Electronic Market-*

Table 9. Specialized Website Features (n=128).

Specialized feature	% of farms
Forms for ordering	42.2
Online ordering but conventional payment	35.2
Online payment for orders	31.3
Areas with customized content for different audiences	24.2
Password-protected area for registered customers	3.9
Other	24.2

ing in Agriculture. http://aede.osu.edu/programs/e-agbiz/pageeducators/index.html, accessed 20 October 2005.

Frain, M. 2003. "E-Commerce for Farmers: Yes, You Can!" *The New Farm.* The Rodale Institute.

Klotz, J.-C. V. 2002. *How to Direct-Market Farm Products on the Internet*. U.S. Department of Agriculture, Agricultural Marketing Service.

Mueller, R.A.E. 2000. *Emergent E-Commerce in Agriculture.* AIC Issues Brief Number 14. University of California Agricultural Issues Center.

National Agricultural Statistics Service (NASS), Agricultural Statistics Board. 2005. *Farm Computer Usage and Ownership*. Washington, D.C.: U.S. Department of Agriculture.

National Agricultural Statistics Service (NASS). 2002. "Table 2: Market Value of Agricultural Products Sold Including Direct and Organic 2002 and 1997." *2002 Census of Agriculture Volume 1 Chapter 2: U.S. State Level Data*. Washington, D.C.: U.S. Department of Agriculture. http://www.nass.usda.gov/census/census02/volume1/us/st99_2_002_002.pdf, accessed 20 October 2005.