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Ohio's Amish and Mennonite Produce Growers: Farm Trends, Information Needs, and Agricultural Communication Preferences

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Abstract: This study (1) describes the characteristics of Ohio Amish and Mennonite produce farmers and their operations; (2) determines awareness of and participation in OSU Extension programs by Amish and Mennonite produce farmers; (3) determines the methods used by Amish and Mennonite produce farmers to acquire farming information; and (4) identifies subject matter needs of Amish and Mennonite produce farmers for future Extension programming. In order to provide effective future Extension programming efforts for this particular clientele, a mail survey was used to collect data from 345 Ohio Amish and Mennonite farmers who participate at Ohio produce auctions. They were asked to describe their preferred means of communication and their informational and educational needs. Key findings from this study were that interpersonal contact was the method most used by Amish and Mennonite produce farmers; they are relatively uninvolved in other Ohio farm or government organizations beyond Extension; they prefer personalized, individual attention; they obtain farming information from a variety of sources including Extension bulletins, newsletters, newspaper or magazine articles, farm/home/field visits, and field days/demonstrations; and they seldom use the internet as a resource for produce farming information. Production issues were rated as the most needful information; examples include disease management, insect management, and soil fertility. This indicates that many farmers still need basic production information. Since 26% of Ohio Amish and Mennonite produce farmers have been engaged in farming ten years or less, an opportunity exists for Extension or other service providers to educate farmers and provide needed information to help less experienced farmers become successful produce farmers. [Abstract by author.]

Keywords: Ohio State University Extension; produce auctions; agricultural communications; agriculture education; programming

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INTRODUCTION AND RESEARCH OBJECTIVES

Cooperative Extension has a 100-plus-year history of working within the national system of land-grant universities to assist in the growth of farmers and the agriculture industry. Extension provides an important link between farmers and researchers; farmers have come to value the services they receive from Extension (Ekanem, et al. 2001). Not only does the Cooperative Extension Service strive to meet the needs of large production farms, it also seeks to fulfill the needs of small-farm landowners, non-traditional producers, and homeowners (Polson and Gastier 2001). Amish and Mennonite farmers comprise one of the larger producer groups that directly benefit from the Extension system, the decisions of which, according to Brock, Ulrich-Schad, and Prokopy (2018), are embedded in the social and cultural identity of the farmer. This is particularly important when trying to conduct outreach to underserved groups such as the Amish and Mennonites (Sommers and Napier 1993; Hockman-Wert 1998; Brock and Barham 2015).

In 2011, I conducted a study of Ohio Amish and Mennonite produce farmers (Bergefurd, et al. 2011). The study objectives were to (1) describe the characteristics of Ohio Amish and Mennonite produce farmers and their operations; (2) determine awareness of and participation in OSU Extension programs by Ohio Amish and Mennonite produce farmers; (3) determine the methods of communication used by Ohio Amish and Mennonite produce farmers to acquire farming information; and (4) identify subject matter needs of Amish and Mennonite produce farmers for future Extension programming. Though the data are now a decade old, the findings remain instructive for understanding how Amish and Mennonites interact with Ohio Extension.

MATERIALS AND METHODS

Target Population

A mail survey questionnaire following Dillman's Tailored Design Method (TDM) (Dillman 2000) was used to collect data from respondents. The target population was Ohio Amish

and Mennonite farmers who grew and marketed produce at eight Ohio Department of Agriculture-licensed produce auctions in Ohio as of December 2010. These eight produce auctions were located throughout Ohio in the following counties; Pike, Geauga, Holmes, Medina, Belmont, Richland, Morrow, and Morgan. In Ohio, all farmers who sell produce at auction must be registered with the particular auction and all auctions are licensed with the Ohio Department of Agriculture. The databases of Amish and Mennonite farmers who were registered to sell produce at Ohio's eight produce auctions were obtained from the individual produce auction managers who keep these databases. To control the threat of error existing in the listings, the names of the farmers in the listings were checked by the produce auctions managers—who monitor each farmer at their auction—to make sure the lists were accurate, complete, and up-to-date.

The databases were merged and then purged to eliminate any duplicate listings to create a master list ($n=345$). The entire target population was surveyed, as it has the advantage of providing information on every individual of the population.

Survey Content

The data collection instrument was developed based on study objectives and a literature review. Development of the questionnaire began by generating a list of the information desired from the target population. The initial list of questions was organized into five different categories: Extension needs, information sources, interpersonal contact methods, annual contacts, and demographic information. After the items were categorized, questions were developed, reviewed, and analyzed using Dillman's eight criteria for assessing survey questions (Dillman 2000).

The instrument consisted of five sections with a total of 82 questions. Section I asked Amish and Mennonite produce farmers to rate the importance of selected future Extension program topics. Section II asked farmers how often they used particular information sources in an average year. Section III asked farmers to indicate the methods they use in communicating with selected organizations or individuals. Section IV asked farmers to indicate how many times in an average year they communicated with selected organizations or

individuals. Section V focused on demographic, farm, and personal characteristics of the farmers and their operations. Farmers also were asked to provide specific recommendations on how OSU Extension could better serve them.

The OSU IRB determined this study to be exempt under category #2 exemption: "Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior" (Protocol Number 2011E0274).

Survey Distribution

The survey questionnaire distribution was based on the Tailored Designed Method (TDM) consisting of five elements, which individually have been shown to significantly improve response to mail surveys. These elements include a respondent-friendly questionnaire, up to five carefully timed contacts with the questionnaire recipient, inclusion of a stamped return envelope, personalized correspondence, and an offer to send an executive summary of findings as a token incentive (Dillman 2000).

Several strategies were utilized to control non-response error. A pre-survey postcard was sent to each person on June 3, 2011, explaining the purpose of the research and informing the recipients that a mail questionnaire would be sent shortly thereafter. Pre-notification has been shown to increase response rates on mailed surveys (Miller and Smith 1983). The questionnaires were mailed with instructions on June 16, 2011, to the registered produce farmers. The questionnaire, incentive postcard, and a stamped return envelope were all printed on colored paper (Ohio State's scarlet and gray scheme) and mailed. The cover letter was printed on The Ohio State University (OSU) South Centers' letterhead. It assured respondents that their answers would remain confidential and then requested study participants to return completed questionnaires within three weeks (Dillman 2000; Miller and Smith 1983).

Motivation to participate in surveys varies widely among respondents, and rewards can include civic responsibility, interest in topic, financial reward, and interest in expressing an opinion (Dillman 2000). As an incentive for completing this questionnaire, respondents were given the option to receive a free one-year subscription to a

leading horticulture farming newspaper, *Country Folks Grower* (a \$22.00 value) by returning an enclosed postcard.

A reminder postcard was mailed to all participants on June 30, 2011, asking them to participate and return the questionnaire by July 11, 2011. Only one questionnaire came back because of an invalid address. Of the remaining valid 344 addresses, 150 completed questionnaires were returned by the cutoff date.

Data Analysis

Twelve returned surveys were purged: four respondents were not Amish or Mennonite, one was not a produce farmer, one no longer farmed in Ohio, and six respondents indicated they did not sell produce at Ohio produce auctions. After purging the respondents, 138 surveys were included in the data analysis for an overall response rate of 41%. Mail surveys designed using Dillman's Tailored Design Method yielded response rates of 58 to 92% (Dillman 2000). However, research on response rates from farmers, as a particular group of interest, reported lower response rates of 12-35% (Pennings, et al. 1999). Similarly, a response rate of 37% was achieved with a sample of small farms in Tennessee (Muhammad, Tegegne, and Ekanem 2004).

Data collected in this study were coded, entered, and analyzed using IBM SPSS Statistics version 19.0 (Norusis 2004). Responses to open-ended questions and participants' written comments were tabulated separately. After all data were entered into SPSS, the researcher checked the data for accuracy by visually inspecting the data and running frequency analysis for each item. Descriptive statistics—including frequencies, percentages, averages, and standard deviations—were used to describe the characteristics of the respondents.

Non-response error was assessed by comparing early and late respondents (Miller and Smith, 1983; Lindner, et al. 2001). An independent t-test was calculated, comparing the responses of the first half versus the last half of questionnaires on 10 demographic, farm, and personal characteristics. No significant differences between early and late respondents for the 10 items existed ($p > 0.05$), suggesting that data collected were representative and can be generalized to the entire population.

TABLE 1. DEMOGRAPHIC CHARACTERISTICS BY CATEGORY, FREQUENCY AND PERCENTAGE

Variable	Response Category	n	%
Total years been farming (n=135; range 1-50)	1-10	61	45.2
	11-20	35	25.9
	21-30	25	18.5
	31-50	14	10.4
Gender (n=141)	Male	141	100
	Female	0	0
Age (n=141)	20-29	29	20.6
	30-39	41	29.0
	40-49	40	28.4
	50-59	23	16.3
	>60	8	5.7
Amish or Mennonite (n=141)	Amish	107	75.9
	Mennonite	34	24.1
Primary Occupation (n=139)	Farming	115	82.7
	Non-farming	24	17.3
Highest level of education (n=141)	No formal education	6	4.3
	Less than 12 th grade	131	93.6
	High school graduate/GED time	3	2.1
Farm acreage (n=140; range 2- 270 acres)	1 to 20 acres	29	20.7
	21-50 acres	32	22.9
	51-90 acres	34	24.3
	91-130 acres	29	20.7
	130-160 acres	11	7.8
	161-200 acres	3	2.2
	200 acres +	2	1.4
Change in business (n=140)	Discontinue	4	2.9
	Reduce	16	11.4
	Maintain	86	61.4
	Expand	34	24.3
Internet use (n=140)	Never	136	97.2
	Seldom/annually	3	2.1
	Occasional/monthly	1	.7
	Frequent/weekly	0	0
	Very frequently/daily	0	0
Member of an Ohio farm organization (n=136)	Ohio Produce Growers & Marketers Assn. (OPGMA)	12	8.8
	Ohio Ecological Food and Farm Assn. (OEFFA)	8	5.9
	Ohio Farm Bureau Federation (OFBF)	1	0.7
	None	115	84.6

RESULTS

Objective #1: Describe the characteristics of Ohio Amish and Mennonite produce farmers and their operations

All Ohio Amish and Mennonite produce farmers registered to sell produce at Ohio produce auctions were male (100%); ages included 29.1% from 30 to 39 and 28.4% from 40 to 49. Of religious affiliations, 107 (75.9%) were Amish and 34 (24.1%) were Mennonite. Of education, 131 (93.6%) had less than a 12th grade education. Total years in farming ranged from one to 50 years with about half of the respondents farming for 13 years or less (Table 1).

EMPLOYMENT AND BUSINESS

Farming was the primary occupation (50%+ of time) for 82.7% of respondents (Table 1). The number of full time employees hired by respondents ranged from one to 11 with 38 respondents (27.7%) employing two full-time employees. Twenty-seven respondents (19.9%) reported having one part-time employee. Eighty-six respondents (61.4%) expected the size of their produce farm to maintain production as it was at the time of the survey, whereas 34 (24.3%) planned to expand production within the next five years; 11.4% and 2.9% expected the size of their produce farm to reduce or discontinue production, respectively.

INTERNET USAGE AND ASSOCIATION AFFILIATION

Ninety-seven percent (97.1%) of the Amish and Mennonite produce farmers did not use the internet as a source of farming information. Eighty-three percent (83.3%) of respondents do not belong to any farm organization. However, 5.7% reported being members of the Ohio Ecological Food and Farm Association (OEFFA), and 8.6% are members of the Ohio Produce Growers and Marketers Association (OPGMA).

FIGURE 1. PERCENTAGE OF GROSS FARM SALES ATTRIBUTED TO PRODUCE SALES IN 2010

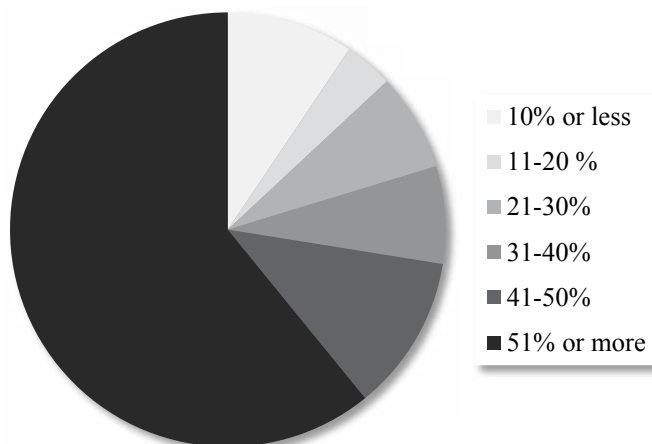
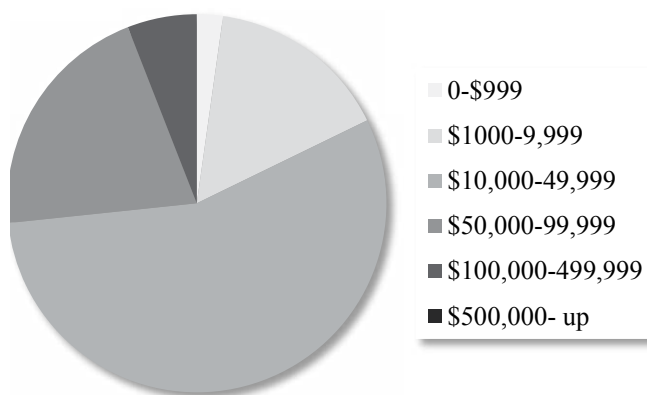


FIGURE 2. GROSS ANNUAL FARM SALES OF OHIO AMISH AND MENNONITE PRODUCE FARMERS IN 2010



INCOME

The percent of total gross farm sales attributed to produce sales for 84 (60.9%) of the respondents was 51% or more, while 13 farmers (9.4%) reported less than 10% of their gross farm sales was attributed to produce sales (Figure 1).

More than half of the respondents (n=75, 55.6%) reported annual farm gross sales of \$10,000 to \$49,000. Twenty-one respondents (15.6%) reported annual gross farm sales of \$1,000 to \$9,999. Twenty-eight respondents (20.7%) reported annual gross farm sales of \$50,000 - \$99,000 and eight respondents (5.9%) reported sales of \$100,000 to \$499,000. None of the respondents reported annual gross farm sales greater than \$500,000 (Figure 2). Based on these sales figures, over 90% of Ohio

TABLE 2: SOURCES OF INFORMATION USED BY OHIO AMISH AND MENNONITE PRODUCE FARMERS

Source of Information (total n)	Frequency of Responses				
	Never	1-3 times a year	4-6 times a year	7-9 times a year	10+ times a year
Bulletins (n=129)	25	27	15	10	52
Newsletters (n=133)	26	33	15	11	48
Newspaper/magazine articles (n=127)	23	39	22	13	30
Farm/home/field visits (n=130)	24	72	18	5	10
Field days/demonstrations (n=131)	48	74	7	1	1
Television (n=128)	128	0	0	0	0
Radio programs (n=128)	128	0	0	0	0
Office visit (n=128)	84	41	2	0	1
County workshop (n=126)	102	21	2	0	1
State workshop (n=126)	113	12	1	0	0
Internet/web sites/webinar (n=128)	125	2	1	0	0
Social media (n=128)	127	0	1	0	0

Amish and Mennonite produce farmers would be classified as small farmers using the USDA classification of \$250,000 in gross farm sales or less.

Objective #2: Determine awareness of and participation in Extension programs by Ohio Amish and Mennonite produce farmers

Nearly all respondents—132 (94.3%)—were aware of OSU Extension, and 101 (73.6%) personally knew an OSU Extension professional (e.g. educator or specialist). Most respondents—118 (83.7%)—indicated they had benefited from information or assistance provided by OSU Extension. Fifty-six percent (56%) of respondents were aware of the OSU South Centers at Piketon, Ohio.

Objective #3: Determine the methods of communication used by Ohio Amish and Mennonite produce farmers to acquire farming information

Ohio Amish and Mennonite produce farmers use a variety of communication and information sources (Table 2). University bulletins such as the *Ohio Vegetable Production Guide* and the *Midwest Small Fruit and Grape Spray Guide* were used 10 or more times in an average year by 52 respondents (40.3%). Newsletters such as the *Truck Patch News*, *OSU Vegnet*, and the *Ohio Fruit Integrated Crop Management* (ICM) represented the second most popular source of information; 48 respondents (36.1%) used this source 10 or more times a year. Newspaper and magazine articles were used by 30 (23.6%) respondents 10 or more

times a year. The internet, websites, and webinars were not used by 125 (97.7%) of respondents. One-hundred twenty-seven (99.2%) farmers indicated they have never used social media such as Facebook, blogs, or Twitter as information sources. One-hundred percent (100%) of respondents indicated they have never used television or the radio as information sources. Office visits and farm visits were used by respondents for sources of information one to three times per year by 41 (32%) and 72 (55.4%) respondents, respectively. Seventy-four respondents (56.5%) indicated they used field days and field demonstrations as sources of information one to three times per year. Respectively, 102 (81%) and 113 (89.7%) have never used county or state workshops as information sources.

Respondents were asked to check all the methods they used in communicating with selected organizations or individuals (Table 3). Respondents indicated that they do not use email as a contact method for communicating with any organizations or individuals. Face-to-face communication was reported to be the most used method of communicating with other farmers within the community by 135 (97.1%) of respondents. Eighty (58.8%) respondents indicated they communicated with farmers outside of their community—but who still lived in Ohio—via face-to-face communication. Fifty-six (42.4%) respondents used U.S. mail to communicate with farmers who reside outside of Ohio. Seventy-eight (58.2%) indicated they use face-to-face communication whereas 53 (39.5%) indicated that they used the telephone to communicate with Extension professionals within their county. The communication method used by 67 (48.9%) of respondents to communicate with seed company representatives was U.S. mail, whereas 60 (43.8%) of respondents communicated with seed company representatives face-to-face.

TABLE 3. METHODS OF COMMUNICATING WITH INDIVIDUALS AND ORGANIZATIONS

Source of Information		Frequencies	
		Yes n (%)	No n
Farmers in my community and/or neighborhood (n=139)	Phone	18 (12.9)	121
	E- mail	1 (0.7)	138
	US Mail	26 (18.7)	113
	Face-to-Face	135 (97.1)	4
	No contacts	0 (0.0)	139
Farmers outside of my community and/or neighborhood but in Ohio (n=136)	Phone	30 (22.1)	106
	E- mail	1 (0.7)	135
	US Mail	63 (46.3)	73
	Face-to-Face	80 (58.8)	56
	No contacts	9 (6.6)	127
Farmers who reside outside of Ohio (n=132)	Phone	32 (24.4)	100
	E- mail	1 (0.8)	131
	US Mail	56 (42.4)	76
	Face-to-Face	38 (28.8)	94
	No contacts	31 (23.5)	101
Other farm organizations e.g., Ohio Farm Bureau (n=128)	Phone	6 (4.7)	122
	E- mail	1 (0.8)	127
	US Mail	12 (9.3)	116
	Face-to-Face	12 (9.3)	116
	No contacts	98 (76.5)	30
Extension professionals in my county (n=134)	Phone	53 (39.5)	81
	E- mail	2 (.94)	132
	US Mail	30 (22.4)	104
	Face-to-Face	78 (58.2)	58
	No contacts	22 (16.4)	112
Extension professionals outside my county (n=127)	Phone	29 (22.8)	98
	E- mail	1 (0.8)	126
	US Mail	15 (11.8)	112
	Face-to-Face	33 (26.0)	94
	No contacts	61 (48.0)	66
Extension professionals not from Ohio State (n=126)	Phone	6 (4.8)	120
	E- mail	0 (0.0)	126
	US Mail	7 (5.6)	119
	Face-to-Face	10 (7.9)	116
	No contacts	102 (81.0)	24
Government agencies e.g., USDA, Soil Conservation Service) (n=127)	Phone	9 (7.1)	118
	E- mail	0 (0.0)	127
	US Mail	17 (13.4)	110
	Face-to-Face	14 (11.0)	113
	No contacts	92 (72.4)	35
Seed company representatives (n=137)	Phone	45 (32.8)	92
	E- mail	2 (1.4)	135
	US Mail	67 (48.9)	70
	Face-to-Face	60 (43.8)	77
	No contacts	10 (7.3)	127

Table continued on next page

TABLE 3: (CONTINUED)

Chemical company representatives (n=132)	Phone	38 (28.8)	94
	E- mail	2 (1.5)	130
	US Mail	30 (22.7)	102
	Face-to-Face	69 (52.3)	63
	No contacts	30 (22.7)	102
Private consultants (n=129)	Phone	24 (18.6)	105
	E- mail	0 (0.0)	129
	US Mail	13 (10.1)	116
	Face-to-Face	46 (35.7)	83
	No contacts	68 (52.7)	61
Fertilizer company representatives (n=136)	Phone	40 (29.4)	96
	E- mail	0 (0.0)	136
	US Mail	43 (31.6)	93
	Face-to-Face	96 (70.6)	40
	No contacts	14 (10.3)	122

Fifty-two percent of respondents communicate with their chemical company representatives face-to-face while 70.6 percent of respondents indicate they communicate with their fertilizer company representatives face-to-face. The majority of respondents indicated that they do not communicate with other farm organizations (76.5%), out-of-state Extension professionals (80.9%), or government agencies (72.4%).

Objective #4: Identify subject matter needs of Amish and Mennonite produce farmers for future Extension programming

Respondents were asked to rate the importance of a variety of topics related to produce farming to help identify priorities for future OSU Extension programming. Each topic was ranked on its importance by checking either none, little, moderate, or great (Table 4). Disease management, insect management, and soil fertility ranked as the top three topics in terms of importance with averages indicating moderate to great importance. Grape variety testing ranked lowest with no or little importance. Other Extension needs listed as moderate to great importance for 50% or more of respondents included vegetable variety testing, soil conservation, crop nutrition, weed management, produce marketing, irrigation techniques, farm financial management, greenhouse production, and food safety.

Producers' Specific Recommendations for Better Service from OSU Extension

Respondents were asked via an open-ended question how OSU Extension could better serve them. Forty-two respondents provided 69 comments, which were organized into the following themes: Extension suggestions (n=30), research suggestions (n=5), food safety regulations (n=7), pesticide regulations (n=2), and opinion offered by the respondent (n=25). The themes are summarized below.

Extension suggestions included a more consistent awareness of upcoming educational programs including more local programming to help with the identification and control measures of specific diseases and insects in produce crops. It was suggested Extension conduct "Amish friendly" hands-on workshops and field walks earlier in the day. "Amish friendly" is understood to mean events without the use of electronic video or computer devices. Suggested educational topics of interest included soil conservation, soil fertility, small fruit production, food safety, pest control, weed control, marketing and promotion of local produce, Community Supported Agriculture (CSA) marketing, hot house and high tunnel tomato production, and field research updates.

There was a group request for implementation of Integrated Pest Management (IPM) scouting programs in production areas to help farmers identify and control pest and disease problems. Respondents indicated a willingness to pay for this service. It was also suggested that a telephone number be established so growers could call in to get updated information on disease and insect outbreaks. It was suggested that farmers be updated on upcoming educational programs, crop disease and insect outbreaks, growing tips, and crop management through the use of frequent non-electronic newsletters, mailed directly to farmers, especially during the growing season.

Future research programming suggestions included organic produce and cropping systems; breeding of open pollinated heirloom varieties of produce to enhance genetic strains; research on marketing organic vegetables; and ongoing

TABLE 4: EXTENSION NEEDS AS RANKED BY OHIO AMISH AND MENNONITE PRODUCE FARMERS

Topic	N				Mean	SD*	Rank
	None	Little	Moderate	Great			
Disease management (n=132)	0	5	39	88	2.63	.55	1
Insect management (n=132)	0	5	45	82	2.58	.56	2
Soil fertility (n=134)	2	11	40	81	2.49	.71	3
Crop nutrition (n=133)	6	10	38	79	2.43	.81	4
Produce marketing (n=132)	4	14	54	60	2.29	.77	5
Weed management (n=131)	1	19	57	54	2.25	.72	6
Food safety regulations (n=129)	3	27	45	54	2.16	.83	7
Soil conservation (n=129)	8	30	50	41	1.96	.89	8
Irrigation techniques (n=128)	12	35	41	40	1.85	.97	9
Greenhouse production (n=130)	25	22	41	42	1.77	1.10	10
Vegetable variety testing (n=130)	21	27	53	29	1.69	.99	11
Farm financial management (n=126)	29	32	40	25	1.48	1.05	12
Organic crop production (n=130)	34	39	32	25	1.37	1.07	13
High tunnel production(n=129)	54	13	23	39	1.36	1.29	14
Business planning (n=126)	29	46	35	16	1.30	.96	15
Labor management (n=127)	39	42	29	17	1.19	1.02	16
Berry variety testing (n=128)	53	31	30	14	1.04	1.04	17
Tree fruit variety testing (n=128)	70	30	22	6	.72	.91	18
Grape variety testing (n=128)	73	38	12	5	.60	.81	19

*S.D. = standard deviation

research on disease and insect control methods. Food safety suggestions provided by respondents included that OSU Extension conduct more food safety farm walks in Amish communities to generate food safety interest. Respondents stated concerns that due to their use of horses to farm, future food safety regulations could make it difficult for them to abide by the changes and possibly put them out of business. Pesticide regulation suggestions included providing help and education with getting spray applicator licenses and setting up pesticide disposal programs in their county. General opinions written by respondents included an overall appreciation and gratitude to OSU Extension and individual Extension professionals for their past and current overall efforts, service, and assistance in supporting Ohio Amish and Mennonite produce farmers and communities. Respondents

indicated that since OSU's voice is respected by lawmakers, they will very much appreciate when OSU Extension listens to their concerns.

DISCUSSION

Extension has increasingly adopted less personal, face-to-face types of teaching and learning methods with more communication accomplished through email or online. Even though in the United States 79% of adults report using the internet at a workplace, school, home, or other location on at least an occasional basis (Rainie 2010), Amish and Mennonite produce farmers do not rely on information and communication technologies as information sources. Extension professionals working with Amish and Mennonites need to be aware

their preferred communication methods when providing education and technical assistance.

Researcher's Personal Responsiveness to Survey Findings

As an Extension educator who has worked closely with Amish and Mennonite produce farmers for 30 years, I always remain cognizant of the communication methods I use in my Extension programming. The results of this survey confirmed the principles that I have been adhering to when providing research-based information to Amish and Mennonite produce farmers. For example, the *Ohio State Vegnet* newsletter, a free, weekly in-season newsletter for Ohio produce farmers, had traditionally been emailed to produce farmers statewide for 10 years. I became the lead author of the newsletter in 2012 and continued to email it to those farmers who had subscribed. Since farmers indicated through this article's survey that newsletters were a source of information that they highly utilized for production information, produce auction managers were added to the email list. The produce auctions, in turn, pay for making hard copies of the newsletter from their auction operating budgets and distribute them for free to their Amish and Mennonite produce farmers at their respective produce auctions. Face-to-face, in-person communication instructional methods are used in my Extension programs, for they are preferred by Amish and Mennonite produce farmers and are the most-preferred source for obtaining information. On-farm educational field days and training programs, financially sponsored by produce auction facilities and held on grower cooperator farms, have remained an important source of instruction throughout my Extension career. Face-to-face "kitchen meetings" are commonly held throughout the winter months for small group Extension meetings, where farmer cooperators volunteer the use of their homes and kitchens to hold one-on-one discussions and Extension program planning meetings. Through cooperation with private industry and farmer partners, I continue to provide in-person educational programming in times when many Extension Services are turning to more online instructional methods.

Extension Services' Application of Survey Findings

The top ranked topics of importance consisted of basic production information including insect and disease management and soil fertility. Respondents indicated food safety was of moderate to great importance. Since this study, leaders of the OSU Fruit and Vegetable Safety Program have developed Good Agricultural Practices (GAPs) training curriculum for Amish and Mennonite growers.¹ This curriculum is used in place of the standard PowerPoint presentations and online training materials traditionally used to train produce growers in the area of produce safety.

Suggestions for Non-Extension Organizations

I partnered with local chemical and fertilizer representatives who conduct on-farm demonstrations throughout the areas where the produce auctions operate. These company representatives co-sponsor Extension pesticide update meetings and on-farm demonstration trials, as opportunities to share new product updates. Representatives of chemical and fertilizer companies should recognize that their Amish and Mennonite clientele may prefer communication methods that are not commonly used by the majority of their customers.

Limitations

This study has several limitations. First, it only focused on Amish and Mennonite produce farmers who grow for Ohio produce auctions. Second, 100% of the respondents were men; no female produce farmers were a part of this study due to the design of the survey contacting household heads. Third, a more detailed and specific faith conviction and diversity data were not collected from the respondents; results could vary among different groups of Amish and Mennonites, both of which are very broad religious traditions containing many denominations. Finally, the results are now over a decade old; attitudes, communication methods, and farming characteristics may have changed some. However, this study provides a benchmark for future inquiries into these topics, permitting us to track change.

CONCLUSIONS

As Extension continues adopting more non-face-to-face educational methods and adding more online and electronic media instruction, results of this study indicate that service providers should use a multiple-output strategy concentrating on interpersonal one-on-one communication activities when teaching and consulting with Amish and Mennonite farmers. The high percentage of Amish and Mennonite farmers who are aware of, or have benefited from, OSU Extension shows that Extension has had an impact. The use of Extension services by these farmers will continue as long as Extension professionals provide relevant information using communication methods conducive to the culture and lifestyles of the Amish and Mennonites, providing information and services that meet the needs of the farmers.

ENDNOTE

¹ See <https://medina.osu.edu/sites/medina/files/imce/AGNR/Handouts/GAPs%20Plain%20Grower%20FINAL%20sm.pdf>

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