



## Article

# Weekly Question-and-Answer Extension Radio Show Helps Listeners Adopt Environmentally Sound Horticulture Practices

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**Abstract:** Cooperative Extension has a long history of using radio broadcasts in educational programming. The Minneapolis, MN-based CBS affiliate WCCO Radio 830AM contacted the University of Minnesota Extension (UMNExt) in 2013 to reinstate an 8:00 AM Saturday live gardening show titled “Smart Garden”. After several years of doing the radio show, we wanted to determine the effectiveness of getting information to listeners, what people were doing differently because of what they heard on the show, and how much they used the Extension’s resources after listening to the program. After analyzing 410 responses to an online survey, we found 78% of respondents reported they frequently or always learned something new when listening, and 56% reported adopting environmentally important practices, such as pollinator gardens, less chemical use, better lawn care, water conservation, and removing invasive plants. We concluded that this educational programming was making a positive impact on consumer horticulture practices.



**Citation:** Weisenhorn, J.; Meyer, M.H.; McGoff, R.; Rooney, T. Weekly Question-and-Answer Extension Radio Show Helps Listeners Adopt Environmentally Sound Horticulture Practices. *Horticulturae* **2021**, *7*, 72. <https://doi.org/10.3390/horticulturae7040072>

Academic Editors: Ellen M. Bauske and Sheri Dorn

Received: 9 March 2021

Accepted: 2 April 2021

Published: 6 April 2021

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**Keywords:** consumer; gardening; landscaping; educational impact

## 1. Introduction

Gardening is a popular pastime in many countries, including the United States. Lawn and garden activities are at an all-time high, with 77% of all US households participating in at least some related activity in Minnesota in 2017 [1]. The horticulture industry has an economic impact of \$3.5 billion on the Minnesota economy [2]. Changes with the COVID pandemic likely added to the 2020 independent survey results that noted 91% of Minnesotans surveyed spent the same or more time gardening in 2020, and 86% of respondents ( $n = 1200$ ) reported planning to garden the same amount or more in 2021 [3].

Radio recently passed its 100th anniversary (2020) as a source of entertainment and information. A review of formal educational radio programs noted that radio-enabled “a framework for future efforts in implementing educational technologies” [4]. Educational radio has historically been used in rural areas of developing countries [5]. However, Berman makes a case for using it worldwide [6]. Surveys in Japan found radio programs increased in number but decreased in overall broadcasting time [7]. Environmental best practices in gardening are critical as the population increases. Because gardening is a popular avocation that can be educational and entertaining, we felt that radio, a traditional means of educational programming in extension, could be effective in reaching a large number of people.

Minneapolis, MN-based WCCO Radio 830AM contacted the University of Minnesota Extension (UMNExt) in 2013 to reinstate an 8:00 AM weekly live gardening show called Smart Garden in their Saturday morning line-up. First on the air in 1922, WCCO is a commercial news-talk AM radio station. According to Lindsey Peterson, Program Director, the average listener is in their mid-60s, through the focus demographic is the 42-year-old male. The majority of listeners are in the seven-county Minneapolis–St. Paul metro area, but the station also enjoys listenership (average 5.5 h per week) across Minnesota and

western Wisconsin. The WCCO audience “... is extremely loyal. We usually rank at or very near the top of all Minnesota stations in “Time Spent Listening” each week [8]”.

During each Smart Garden show, hosted by veteran radio personality Denny Long, listeners call in or text questions to be answered by one of three UMNExt horticulture experts: Professor emeritus Dr. Mary Meyer, Extension educator Julie Weisenhorn or Extension Master Gardener volunteer Theresa Rooney. Occasionally, a turfgrass educator joins the show during the growing season to field lawn questions. The 60-min show’s question-and-answer format revolves around providing science-based answers to as many listeners’ questions as possible (average 21–25 questions per show, 1100 per year) in the on-air time (41–44 min) between commercials, news and weather. Other formats, including having special guests or topic-based shows, have been tried, but the question-and-answer format has always prevailed. Listeners are captivated by the wide array of questions and the answers and recommendations provided by Extension experts.

After several years of doing the radio show, we wanted to determine the effectiveness of getting information to listeners, what people were doing differently because of what they heard on the show, and how much they used Extension resources after listening to the program. We also wanted to know more about the demographics of the listening audience.

## 2. Materials and Methods

Using the Qualtrics [9] online survey tool licensed with the University of Minnesota, we developed a 19-question survey that was open to public responses from 22 May 2019 until 3 September 2020. We posted a link to the survey (Figure 1) at the top of the Extension Yard and Garden webpage and the Extension Yard and Garden News, an online blog. For the first several months of the survey, we also encouraged listeners during the live radio show to go to the website and complete the survey. As an incentive to participate, respondents could include their email for a drawing to receive one of 10 copies of the book *The 10 Plants that Changed Minnesota*.

### WCCO Smart Garden Survey

Q1—How often do you learn something NEW from the WCCO Smart Garden radio show? Q2—Which of the following CHANGES to your yard and garden have you made since listening to the WCCO Smart Garden show? (check all that apply). Q3—What’s the best yard and garden tip that you’ve learned from listening to WCCO Smart Garden?

Q4—Have you ever asked a question?

Q5—How did you ask it?

Q6—Where do you get most of your gardening information? (check all that apply)

Q7—Do you ever listen to the WCCO Smart Garden podcasts?

Q8—Which of the following University of Minnesota resources did you hear about on the show for the first time? (check all that apply)

Q9—Which of these have you actually used or visited? (check all that apply)

Q10—Smart Garden started in 2011. How long have you listened to WCCO Smart Garden?

Q11—On average, how often do you listen to WCCO Smart Garden?

Q12—How would you rate your own gardening experience? Q13—Where do you listen from?

Q14—What county do you listen from? (open ended question, respondents entered county name) Q15—Age

Q16—Ethnicity Q17—Race (choose all that apply)

Q18—Gender

Q19—Please add any additional comments about WCCO Smart Garden radio show. (open ended question allowing for any comments)

**Figure 1.** Questions in the online survey used to evaluate the Extension Smart Garden radio show in Minneapolis, MN.

## 3. Results

Total usable responses to the survey were 410. At the close of the survey in September 2020, 10 randomly selected recipients from participants, who included their email addresses ( $n = 248$ ), were sent copies of the book. Education is a cornerstone of Extension work, so our first question concerned whether listeners learned anything from listening to the show or how effective was our dissemination of educational information. Seventy-eight percent (78%) of respondents reported that they frequently (39%) or always (39%) learned

something new when listening. An additional 14% indicated they occasionally learned something new, and only 8% said they never learned anything new. Additionally, the word “content” was mentioned 72 times in individual respondents in the final open-ended survey question asking for additional comments.

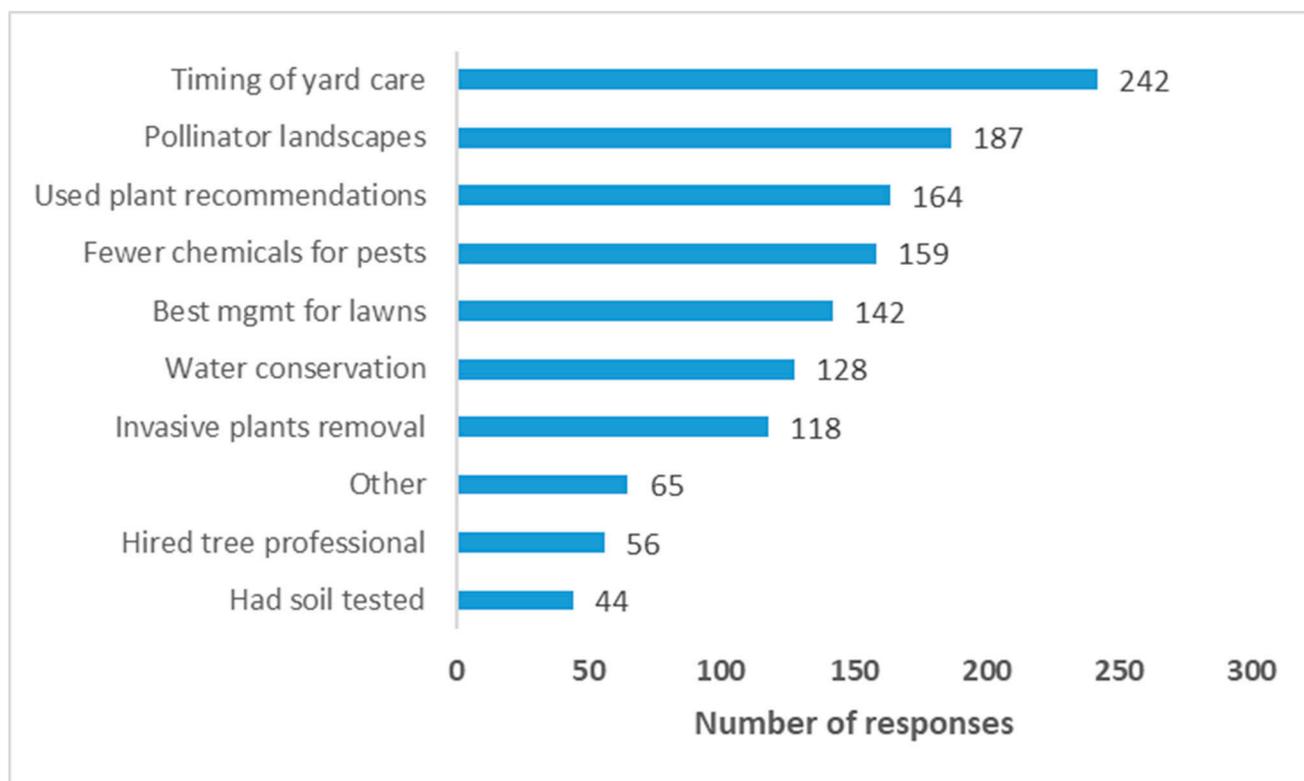
Understanding the impact of our extension work is important. When asked about changes made since listening to the show, 56% of respondents reported adopting environmentally important practices, such as creating a pollinator-friendly landscape (14%), used fewer chemicals to manage weeds, insects and diseases (12%), adopted more environmentally friendly lawn care practices (11%), used water more conservatively (10%), and removed invasive plants (9%) (Figure 2). Nineteen percent reported paying more attention to the timing of yard and garden care, 13% added plants they heard recommended on the show, and 4% hired a certified arborist. Additional comments in response to this question about changes made based on the program could be grouped as follows:

Behavior—planning gardens, timing care, adding pollinator and native plants, changing lawn areas to flower beds; eliminating chemicals; using fertilizer at half strength; pruning; seeding a lawn, raising the mower blade for longer grass, adding rain barrels.

Personal growth—greater gardening confidence and improved gardening skills; experts confirmed beliefs and gardening practices were correct.

Specific topic knowledge—Japanese beetles, plant varieties; growing conditions; weather.

Use of resources—Extension Yard and Garden website; gardening apps; Ask Extension Q&A tool.



**Figure 2.** Changes adopted by listeners when answering the question: “Which of the following changes have you made since listening to the WCCO Smart Gardens show?” (check all that apply).

Considering these four groupings, we learned that listeners are looking for a wide variety of information and using it in multiple ways.

Listeners were asked where they got answers to gardening questions and could identify more than one answer. Twenty percent (20%) reported using online resources, 20% reported they got answers from the Smart Garden show, and 12% from family and friends. Magazines and garden centers each accounted for 11% of listeners’ sources for garden-

ing information. Favorite websites (8%), podcasts (9%) and YouTube Videos (7%) were additional information sources. Respondents' additional comments specifically reported getting gardening information from UMNExt (69 respondents), commercial sources (5), nonprofits/organizations (5), magazines (4), blogs (3), public garden websites (3) and Pinterest (1). Total responses to Question 6 were 1171, almost three times the individual number of respondents, indicating most people are using multiple ways of obtaining gardening information.

Respondents reported hearing about resources on the show for the first time; specifically, 65% reported learning about UMNExt web-based resources for the first time, including 21% Extension website, 18% Ask a Master Gardener, 13% Extension Yard and Garden News, and 12% Master Gardener classes/events or tours. Respondents also indicated other new resources, such as the Minnesota Landscape Arboretum (11%), UMN Plant Disease Clinic (10%), and the UMN Soil Testing Laboratory (11%). When asked about the resources they had actually visited, 28% of the respondents visited the UMNExt website, 20% visited the Minnesota Landscape Arboretum, 14% visited the UMNExt Yard and Garden News, and 13% Ask a Master Gardener.

Fifty-five percent (55%) of respondents reported that they considered themselves to be average gardeners; 28% were advanced gardeners, and 17% were new or inexperienced gardeners. Gardeners are typically modest in their assessment of their skill level; several added that they were horticultural professionals and yet still learned something new from the show. Because there are so many different plants and each year brings new growing conditions, many gardeners consider themselves in a continual state of learning.

Seventeen percent (17%) of respondents reported actually having asked a question, with 57% using text messaging and 43% using the phone line.

The WCCO Smart Garden radio show is regularly recorded and available as podcasts on the WCCO website and also on the UMNExt Yard and Garden homepage. A majority or 58% of respondents reported they had not listened to the podcasts. A majority also responded that they were regular listeners, with 39% reporting that they listen weekly, 28% 2–3 times per month, and 13% once a month. Twenty-nine percent listened since the show began (7–8 years), 17% have listened for 4–6 years, 25% reported being new listeners (listened less than a year), and 20% have listened for 1–3 years.

The final open-ended survey question asked for additional comments, which offered a wide variety of responses and recommendations. Most comments ( $n = 72$ ) were related to show content; personalities—show host, extension experts fielding questions (19), show format (17) or the availability of the show as a podcast (15). Listeners liked the rotating experts, indicating that kept the show “fresh”, also appreciated was the local, very applicable information for Minnesota, the “homey” comfortable feel of the show and the wide variety of questions. Suggestions for improvement were to repeat the plant name once or twice when answering the question as listeners can easily miss what plant you are discussing; as much as possible, provide a specific answer rather than referring the listener to the Extension website; have a weekly to-do list for listeners or timely gardening topics that relate to the specific time of year; increase the program to two hours.

Most respondents (94%) were from Minnesota; 75% identified as female, 23% as male; 58% were 50–70 years old, 20% were 30–49 years old, 17% were over 70 years old, and 5% were under 30 years old. Ninety-seven percent self-identified as white.

#### 4. Discussion

Nearly 80% of respondents learned something from the show providing valuable feedback about how effective this programming is for Extension. The single most adopted change for 19% of listeners related to the timing of gardening activities. Several sustainable or environmentally favorable practices were also mentioned, and when added together, a majority or 56% of respondents are making changes in their home landscapes that favorably affect the environment. Thus, our first objective of determining how effective the radio show is in educational impact shows a very positive impact with respondents showing

specific changes in their gardening practices. Respondents' comments relating to improved confidence in gardening were interesting to learn. For new gardeners, the process of gardening can be intimidating. Instilling confidence can mean new gardeners are more likely to become life-long gardeners and take advantage of the benefits of gardening for mental as well as physical health and well-being. Knowing that many new gardeners started in 2020, we hope this program can be beneficial to them and sustain their gardening.

Thirty-five percent (35%) of listeners indicated they got their gardening information from online sources, their favorite website or YouTube videos. Two-thirds of the respondents, or 65%, indicated hearing about the UMNExt web-based resources for the first time on the show and only 28% indicated they visited the UMNExt website, and much less for the UMNExt Yard and Garden News, and Ask a Master Gardener sites. Even though a link to the survey was on the Extension websites and 62 individual respondents or 15% of respondents did list the UMNExt website as their source of gardening information, overall results clearly show that we need to continue to promote online UMNExt resources.

The Internet has revolutionized where people get their gardening information and is quite different from historic responses of garden centers and friends found previously [10]. Smith and David [11] found that radio and podcasts greatly increased traffic to their websites and access to Extension programming. Although we did not complete pre and post-testing with listeners, other Extension programs [12] have shown radio programming can be very successful for specific audiences in teaching specific skills.

With an average of 41 min per week program to field listeners' questions, promote UMNExt resources and the Minnesota Landscape Arboretum, we concluded the "Smart Gardens" radio program is making a positive impact on listeners in Minnesota while helping them to make sustainable environmental changes in their home landscapes. With the information overload available online today, Extension must continually promote our research-based online resources.

**Author Contributions:** J.W.: conceptualization, scope, original survey and article draft; M.H.M.: methodology and software, second draft and document formatting; final article submission; R.M.: validation, software, formal analysis and review; T.R.: investigation, survey review and editing, draft reviews and editing. All authors have read and agreed to the published version of the manuscript.

**Funding:** The research was funded by University of Minnesota.

**Institutional Review Board Statement:** Ethical review and approval were waived for this study due to the focus on program evaluation which did not meet the definition of human research as outlined by the Institutional Review Board of the University of Minnesota.

**Informed Consent Statement:** All participation in this survey was voluntary and respondents only completed the survey by their own choice.

**Data Availability Statement:** The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy of participants.

**Conflicts of Interest:** The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

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