

## Assessing Impact of Online Delivery of Turfgrass and Landscape Information

### Abstract

Kansas State University's turfgrass Extension team delivers information via linked online resources that include a blog, emails, and social media. We recently surveyed users to assess who they are, what they learn, how they use information, overall impressions, as well as suggested improvements. Users learn how to identify and manage various pests, select plant materials, and where to access further information and training. They prefer an email as the portal to the information. They communicate the information with others. Survey respondents suggested several revisions to format and content.

**Megan M. Kennelly**  
Associate Professor  
and Extension  
Specialist  
[kennelly@ksu.edu](mailto:kennelly@ksu.edu)

**Jared A. Hoyle**  
Assistant Professor  
and Extension  
Specialist  
[jahoyle@ksu.edu](mailto:jahoyle@ksu.edu)

Kansas State  
University  
Manhattan, Kansas

### Introduction and History

Online delivery of Extension programming is increasing, and Extension educators have been encouraged to incorporate digital tools (Kinsey, 2010). Internet resources can provide timely information to a larger audience while reducing travel costs and allowing flexibility for the end-user regarding when and how they access information (Kinsey, 2010). Blogs and other online resources have been used for a wide array of program areas and crop commodities, including grapes (Stafne 2012), apples (DiPietro & Miller, 2009), pecans (<http://northernpecans.blogspot.com/>), and others.

In 2007, the Kansas State University turfgrass Extension team developed a weekly email-based pdf newsletter about turfgrass diseases that was distributed to approximately 500 subscribers on a listserv. The newsletter soon broadened to include other turf and landscape topics, including weeds, insects, plant selection, irrigation, and fertilization, with an overall theme of integrated pest management. After a few seasons, subscribers requested a searchable, archived format, and some expressed difficulty opening the pdf documents. Therefore, the pdf newsletter was converted to a blog format, with various features evolving over time. Blogs are efficient mechanisms for information delivery in the turfgrass industry and offer the ability to track user metrics (Jones, Kaminski, Christians, & Hoffman, 2011). The blog, available at <https://blogs.k-state.edu/turf/>, serves as the content hub. The email newsletter reaches approximately 1,200 subscribers and functions primarily to drive users to content on the blog. We also use Facebook (<https://www.facebook.com/KSUTurf>) and Twitter (<https://twitter.com/KSUTurf>) to provide links to the blog as well as facilitate multi-directional

engagement. Throughout the remainder of this article we use "newsletter/blog" to collectively refer to this package of online resources.

## Assessment Goals and Survey Design

In fall 2014, we designed an online survey to evaluate the newsletter/blog. Nine questions gathered feedback on user characteristics, general reactions, knowledge gains, impacts on action/behavior, and suggestions for improvement. The project was submitted to the University Research Compliance Office and was designated exempt from further review. We designed the survey using Qualtrics (available to KSU faculty) and made it available via an anonymous survey link. The link was distributed through the email, Facebook, and Twitter. Several reminders were also sent to help increase participation. We received 94 responses.

## Survey Results

Respondents were primarily based in Kansas (89%), with some in Missouri (7%) or other states (3%). Our audience represented a broad array of the turfgrass and landscape industries, with golf course management and lawn care as the largest sectors (Table 1).

**Table 1.**

Which Category Below Best Describes Your Role in the Turf and Landscape Industry? Check the One Best Answer.

<b>Answer</b>	<b>Percent response</b>
Golf course management	23%
Lawn care company	18%
Sod farm	0%
City parks/rec	9%
School grounds/athletic fields	4%
Arborist	2%
Local Extension educator/agent	10%
Extension Master Gardener	3%
University faculty	2%
Student	1%
Chemical company (fertilizer/pesticide, etc)	7%
Homeowner	6%
Greenhouse, nursery, or garden	5%

center	
Other (please describe)	9%

One objective was to determine how users access the information. Most (78%) prefer to receive the weekly newsletter for blog links, but others prefer using social media or other methods (Table 2).

**Table 2.**

How Do You Usually Access the Information from the K-State Turf and Landscape News? Mark the One Best Answer?

<b>Answer</b>	<b>Percent response</b>
Watch for the email newsletter, then click to articles of interest	78%
Follow on Facebook	5%
Twitter	6%
Subscription to the blog	6%
Other (please describe)	3%

Another key objective was to learn about knowledge gains and application of that knowledge. Most respondents indicated that the newsletter/blog aided them in the identification of diseases, weeds, and insects (Table 3). Many respondents use the information to implement cultural practices and select and use pesticides.

**Table 3.**

Has the Information From the Newsletter/Blog Helped You with Any of the Following? Check All That Apply.

<b>Answer</b>	<b>Percent response</b>
Diagnose disease problems	73%
Identify weeds	67%
Identify insect pests	63%
Diagnose abiotic/environmental stress problems in plants	37%
Manage weeds using cultural practices	52%
Manage insects using cultural practices	36%
Manage diseases using cultural practices	40%
Select and use chemicals for disease management	40%

Select and use chemicals for insect management	40%
Select and use chemicals for weed management	48%
Manage abiotic/environmental stress problems	30%
Make decisions about irrigation	26%
Select varieties for new plantings (turf ,trees, or ornamentals)	42%
Understand how to submit samples (disease, weed, or insect) for diagnosis	35%

Another goal for the newsletter/blog is to raise awareness of trainings, publications, and other resources. Respondents indicated that they learned about these resources (Table 4).

**Table 4.**

Has the K-State Turf and Landscape Email Newsletter/Blog Led to Any of the Following? Check All That Apply.

<b>Question</b>	<b>Percent responding yes</b>
Made me aware of new turf or landscape resources (print or electronic) from Kansas State University	85%
Made me aware of new turf or landscape resources from outside Kansas State University	55%
Made me aware of educational program opportunities (field days, conferences, pesticide credit trainings, etc)	86%

We asked if users share information from the newsletter/blog. The majority of respondents, 87%, responded "Yes" to the question, "Has the K-State turf and landscape newsletter/blog helped you better communicate about turf or landscape topics with others (e.g., your supervisor, your employees, your clients, your neighbors, or others)?"

We solicited general assessments of the quality and usefulness of the newsletter/blog, and average scores were high (Table 5).

**Table 5.**

Please Rate the Overall Usefulness and Quality of the K-State Turf and Landscape Newsletter/Blog, on a 1-6 Scale, with 6 = Best.

<b>Factor</b>	<b>Average Score</b>
Overall	4.95

usefulness	
Overall quality	5.02

We asked two open-ended questions: "How can we improve the K-State turf and landscape email newsletter/blog? Please type your comments" and "Please provide any additional comments you would like to make." There were many generic positive comments about the information, like "keep it coming" or "we appreciate this resource" and a few comments on specific topics to cover. General suggestions included the following.

- Keep it simple and to the point. A lot of people in this field do not have formal education but need the guidance on how to do their jobs better.
- I wish more info could be printed like a newsletter so we can show our customers.
- Continue to improve the aesthetics to make it more and more palatable.
- Maybe an app sometime for quick smartphone reference
- Make it easier to navigate.
- I always print the newsletter off and make it available to the entire crew.
- Keep posting to Twitter and Facebook.
- Send the email on Monday or Tuesday instead of the end of the week.
- Include more information on lawn care, athletic fields, and lower-maintenance/lower budget sites

## Lessons Learned and Future Work

As highlighted by Jones, Kaminski, Christians, & Hoffmann (2011), blogs provide a way to deliver timely content while facilitating conversation and development of relationships with end-users via comments and/or connections with other social media outlets. We have experienced similar advantages. Jones et al. (2011) also list challenges, including the necessity of frequent updating, availability and speed of Internet access, and user preference for other delivery methods. We have experienced the first challenge, but having two dedicated contributors helps overcome this, along with soliciting guest posts. We received no comments about the second challenge, regarding availability and speed of Internet access. Several users indicated a preference of an e-newsletter format over a blog, but none preferred traditional print delivery.

In the future, we will analyze metrics related to top search hits as well as monthly, weekly, and time-of-day views to optimize delivery. Other Extension blog authors have reported variation based on season or time of week (Stafne 2012; Jones et al. 2011). We will use the metrics to optimize engagement.

Based on the open-ended questions, we will send the email earlier in the week and explore the possibility of a more printable format. We will increase our coverage of lawn care, athletic fields, and lower-budget sites, along with the specific topics that respondents suggested.

### Acknowledgment

This manuscript is contribution no. 15-400-J from the Kansas Agricultural Experiment Station.

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