

## **Use of a Timely Topics Web Tool to Enhance Research-Based Extension Program Impact**

### **Abstract**

Developing creative, impactful methods for delivering research-based Extension educational material is often challenging. However, options have increased as technological advancement has made online learning accessible to stakeholders, producers/farmers, and the general public alike. An interactive timely topics web tool (TTW) can enhance interaction with a program home page to aid Extension professionals in effectively disseminating relevant information to users. Use of an equine program TTW broadened the reach of programmatic resources to national and international scales and increased new and repeat contacts with the educational website. Providing opportunities for interactive web-based learning may enhance implementation of recommended practices and reportable outcomes within Extension programs.

**Keywords:** [timely topics web tool](#), [impact](#), [online outreach](#), [interactive web component](#)

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## **Introduction**

Timely dissemination and implementation of research-based management practices is the fundamental mission of Extension programming, yet finding novel, impactful methods for creatively packaging material in an accessible, attractive manner is often challenging. Technological advances provide new opportunities for Extension education, and the combination of web-based learning and face-to-face educational offerings has resulted in increased retention and participation among adult and nontraditional learners (Bayrak & Akcam, 2017; Hino & Kahn, 2016). Further, interactive additions to online learning modules have been shown to improve learning motivation and retention of learned concepts (Bai, Aman, Xu, Orlovskaya, & Zhou, 2016). We developed an interactive timely topics web tool (TTW) to enhance delivery of equine management, nutrition, and health recommendations and more effectively reach stakeholders, producers, and the general public with a wide variety of knowledge and experience. The intended audience is able to interact with selected topic(s) through a central image and strategically placed hotspots that link to additional best management practice information, resulting in enhanced online educational experiences and increased programmatic impact.

## **Development of the TTW**

Our objective in designing the TTW was to increase project impact and timely dissemination of programmatic materials, coinciding with traditional programming methods and information depots. As most website users often

view a page for approximately 10 s before moving to a different website (Liu, White, & Dumais, 2010), rapid accessibility of information was of critical importance to us when determining the TTW layout. In order to be effective in accomplishing the aforementioned objective, we designed an interactive interface and developed it within Sharepoint to be mobile friendly and to encourage interaction with the equine Extension program website home page (<http://uthorse.tennessee.edu> or <http://uthorse.com>). The TTW has four main components: (a) general title and optional tagline, (b) feature topic summary, (c) central image relevant to the feature topic, and (d) hotspot-linked images and associated text (Figure 1). The positioning of hotspots on the central image provides context regarding the location/condition/organ/environment related to the topic accessed via the hotspot. Feature topics span a variety of equine management subjects relevant to Extension outreach, including nutritional management, herd health, and seasonal interventions.

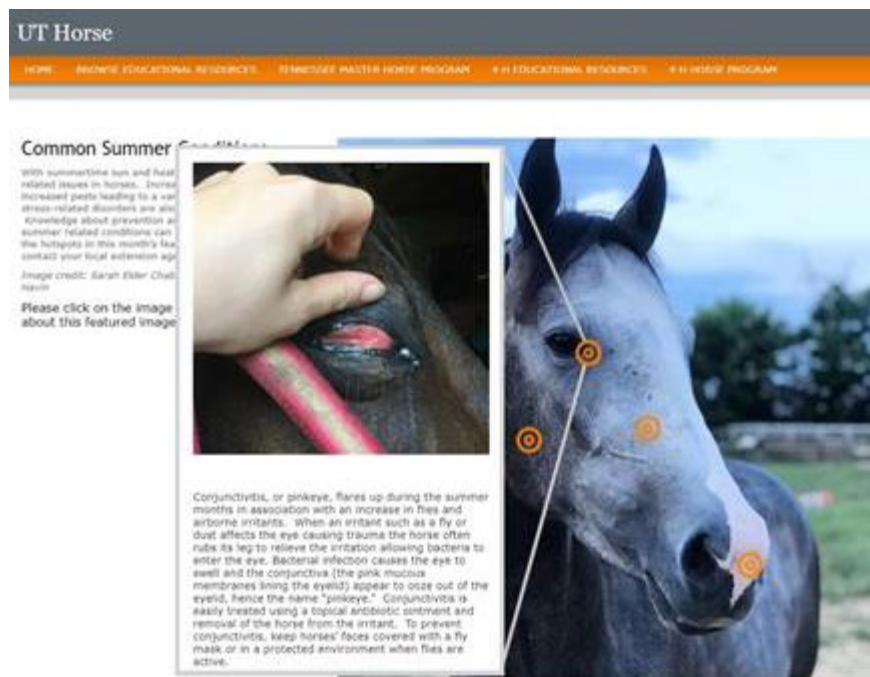
**Figure 1.**

Timely Topics Web Tool Landing Page (A) and Sample Hotspot Interaction (B)

A



B



## TTW Impact

Although much of the information contained within the TTW often is incorporated into other traditional Extension programmatic efforts, including publications, meetings, and outreach events, the TTW substantially increased visibility of the information and programmatic impact beyond what would have been feasible through only traditional Extension methods. Further, with the increased drive to produce meaningful direct contacts to justify programmatic efforts within a land-grant university, data captured by website analytics have been valuable for determining impact of the TTW.

User interaction with the TTW and website analytics were captured through Google Analytics, both before (September 1, 2017–February 28, 2018) and after (March 1, 2018–August 31, 2018) the TTW was implemented on the equine Extension program home page. Results are shown in Table 1. Increases in unique page views occurred after the TTW was added, suggesting increased recruitment of new users to the website. Additionally, the number of times users returned to the page remained consistent, indicating repetitive visits to the site by newly recruited users. Time on the home page increased by 30 s after the TTW was added, likely due to interaction with the tool by those visiting the website. As time on a web page increases to over 120 s (Liu et al., 2010), the likelihood that users will leave the page decreases to less than 1% of the likelihood of their leaving before that time; therefore, increases in time of visit indicated the benefit of the TTW addition for user retention throughout the site. User retention is further indicated and supported by the decreased bounce rate percentage, as more users clicked, or interacted, with the page before moving on to additional pages or sites within the domain. When evaluated together, the number of return users and reduced bounce rate indicated an increased rate of users who were using page contents and finding value within the website with confidence that the content was of quality and worth assessing for future search endeavors (Liu et al., 2010).

**Table 1.**  
Timely Topics Web Tool (TTW) Analytics

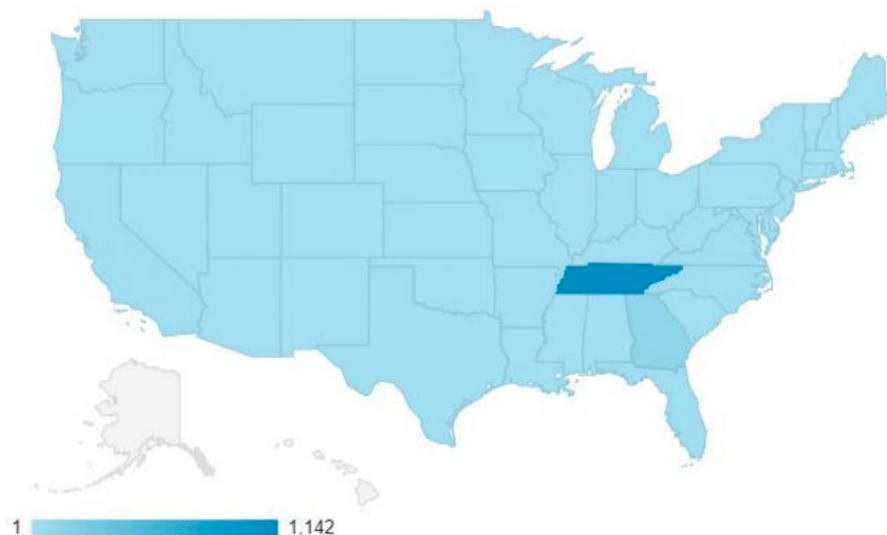
**Website Home Page<sup>a</sup>**

Parameter	UTHorse—	UTHorse—	Ruminant Microbes
	Preaddition <sup>b</sup>	Postaddition <sup>b</sup>	
Date of page operation <sup>c</sup>	Sept 1, 2017–Feb 28, 2018	Mar 1, 2018–Aug 31, 2018	Sept 1, 2017–Aug 31, 2018
Unique page views <sup>d</sup>	3,793	4,381	819
Page views <sup>e</sup>	6,694	6,825	1,447
Time on page (min:s) <sup>f</sup>	1:28	1:58	1:26
Bounce rate (%) <sup>g</sup>	59.21	41.52	62.34

<sup>a</sup>Website home pages house the TTW. The UTHorse website can be accessed via <http://uthorse.tennessee.edu> or <http://UTHorse.com>, and the Ruminant Microbes website can be viewed at <http://rumenmicrobes.utk.edu>. <sup>b</sup>Pre- and postaddition refer to time frames before and after the TTW was introduced on the website home page, respectively. <sup>c</sup>Dates are indicative as to the time frames used to capture Google Analytics data on the TTW interaction. <sup>d</sup>Unique page views represents the total number of times the page was viewed for the first time. <sup>e</sup>Page views indicates the total number of repetitive home page visits by individual users. <sup>f</sup>Time on page is reflective of the average time a user spent on the website. <sup>g</sup>Bounce rate is the percentage of sessions in which there was no interaction with the page.

As national and international programmatic recognition is critical to the sustainability of Extension programming, reach of the TTW was also captured. Since its addition to the equine Extension program home page, the TTW has been viewed by visitors from 48 of the 50 states in the United States, with the most abundant views occurring in Tennessee and Georgia (Figure 2). An international program scope also was captured after addition of the TTW, with activity in Africa, Asia, Australia, Europe, and North and South America (Figure 3). Combining the strength of the Cooperative Extension System and optimal web presence to deliver programmatic materials in concert may serve to maximize both national and international impact while improving retention of information through interactive information sharing.

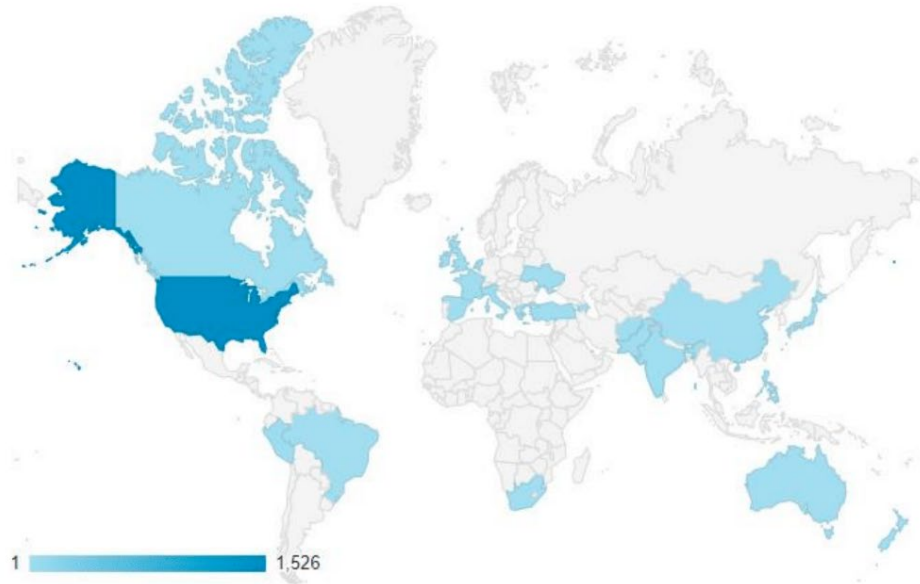
**Figure 2.**  
National Reach of the Timely Topics Web Tool (TTW)



Note: Image data from Google Analytics for UTHorse (<http://uthorse.tennessee.edu> or <http://uthorse.com>) after the addition of the TTW from March 1, 2018, to August 31, 2018.

**Figure 3.**

International Reach of the Timely Topics Web Tool (TTW)



Note: Image data from Google Analytics for UTHorse (<http://uthorse.tennessee.edu> or <http://uthorse.com>) after the addition of the TTW from March 1, 2018, to August 31, 2018.

## Comparative Programmatic Impact of TTW Incorporation

As a reflection of the collaborative efforts across faculty with research, teaching, and Extension appointments, impact of microbial research on nutritional advancement, disease propagation, and general equine management was reflected within the TTW content on UTHorse. A separate website (<http://rumenmicrobes.utk.edu>) also included a TTW, one intended to convert the efforts of a traditional research program into relatable information appropriate for the general public. Comparatively, incorporation of the TTW into this basic science research program home page over a longer time period (September 1, 2017–August 31, 2018) did not have the same impact as the addition of the TTW within an Extension program website (see Table 1). However, as outreach is not typically a major component of fundamental research programs, the contacts generated through addition of the TTW indicated success in adding interactive components to the basic science research program's web presence. Further, increased visibility of program results and impact can be beneficial in securing extramural funding through nontraditional resource recruitment along with cultivation of interest from groups that would not have been exposed to the topic area otherwise.

## Conclusions

The addition of an interactive component to a public-facing home page for research-based Extension programs increased the impact and reach of the equine Extension program by providing a means for interactive online learning. Capitalizing on alternative technologies for disseminating programmatic materials in a timely manner

may result in increased implementation of recommended practices and, accordingly, may enhance reportable outcomes.

### Acknowledgments

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