

Priming for Production: a podcast on soil health

SARE PROJECT ONE15-251

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Farmers are busy. Let's rethink how we communicate science.

Background

In the last few years, there has been a growing interest in soil health and management practices that increase soil health. The foundation of soil health is soil organic matter (SOM), and our understanding of SOM is rapidly changing. In order to enhance farmer decision-making and innovation around soil health, it is important to have a strong understanding of the science behind soil processes.

While there are many effective means of communicating science, we felt that an audio podcast could be a more accessible way to reach farmers and agricultural service providers who may not have time to read written materials, watch videos, or attend conferences. Podcasts have been shown to be an effective learning tool in other contexts such as medical school. People are able to listen to podcasts while multi-tasking without a reduction in their learning outcomes.

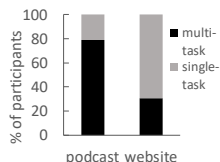


Figure 1: Medical students multitasked more frequently when listening to podcasts than reading a website, but learning outcomes were similar. Data from Lien et al, 2018.

Objectives

This project set out to create an audio podcast about basic soil science concepts that would:

1. Be **relevant to farmers**
2. Be **scientifically sound**
3. Be **engaging** as well as **informative**
4. Include actionable items

Methods

Interviews were conducted with experts and scientists prior to writing episode narratives. We ended up with 13 interviews, and more material than we were able to incorporate into the four episodes that we produced. Sound editing was done using the Audacity program, with the intent to have high-quality audio and engaging material. Podcasts were released in November 2017 on the Soundcloud, iTunes, and Google Play Apps. Transcripts were published online. Advertising was through social media and email contacts.

Results

We produced four episodes about SOM:

Episode 1: What does organic matter do for soil? We get into the physical, biological, and chemical role of SOM. SOManic matter affects water dynamics, is the food for soil organisms, and contributes to cation exchange capacity. Featuring: Johannes Lehmann, Ray Weil, Ivan Fernandez, and Charlie White. (20 min)

Episode 2: Where does soil organic matter come from? In this episode, we delve into the carbon cycle to get a better understanding of where SOM comes from, with particular attention on photosynthesis and respiration. Featuring: Ray Weil, Johannes Lehmann, Stephanie Yarwood, and Steve Groff. (21 min)

Episode 3: What is soil organic matter, really? We get into more detail about what SOM really is, and it may not be what you were taught. Researchers discuss how our understanding of SOM has changed, and how we now think it is mostly dead microbial cells! Featuring: Johannes Lehmann, Ray Weil, Cynthia Kallenbach. (25 min)

Episode 4: How do soils store organic matter? In this final episode on SOM, we get into the physical and biological mechanisms for organic matter storage including texture, aggregation, and microbial carbon use efficiency. This is cutting edge science! Featuring: Stephanie Yarwood, Johannes Lehmann, Charlie White, and Cynthia Kallenbach. (25 min).

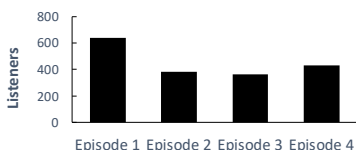


Figure 2: Most listeners continued past the first episode to listen to all episodes.

Reviews:

"I've attended workshops throughout the years on soil health and tried to do reading on my own, but it wasn't until this podcast that I really understood what it was all about."

"So happy to find this podcast... We run an organic farm supply and can't wait to turn customers onto your show. Thank you for making soil health a clear and accessible topic for non-scientists!"



www.soilpodcast.com

Future Directions

The audio podcast has a role in farmer outreach, but there has been very little research in the field of agricultural/science education around effective podcasting strategies. Simple, unedited interviews provide a less time-consuming way of creating podcast material, but rely on an experienced and skilled interviewer. Highly-edited podcasts require far more work than even we anticipated, but would probably get easier with more experience. Research and the development of guidelines for effective podcasting would benefit agricultural educators and service providers who want to use this relatively new form of communication. We hope this will add to the educational materials on soil health and to the continued exploration of podcasting in farmer outreach.

References:

Lien, K., Chin, A., Helman, A., & Chan, T. M. (2018). A Randomized Comparative Trial of the Knowledge Retention and Usage Conditions in Undergraduate Medical Students Using Podcasts and Blog Posts.