



Does training improve the usability of online Extension tools?

Alyssa Agee^{1,2} and Wendy Johnson¹

¹Department of Entomology, College of Agriculture, Kansas State University

²Department of Animal Science, College of Agriculture, Kansas State University



Abstract

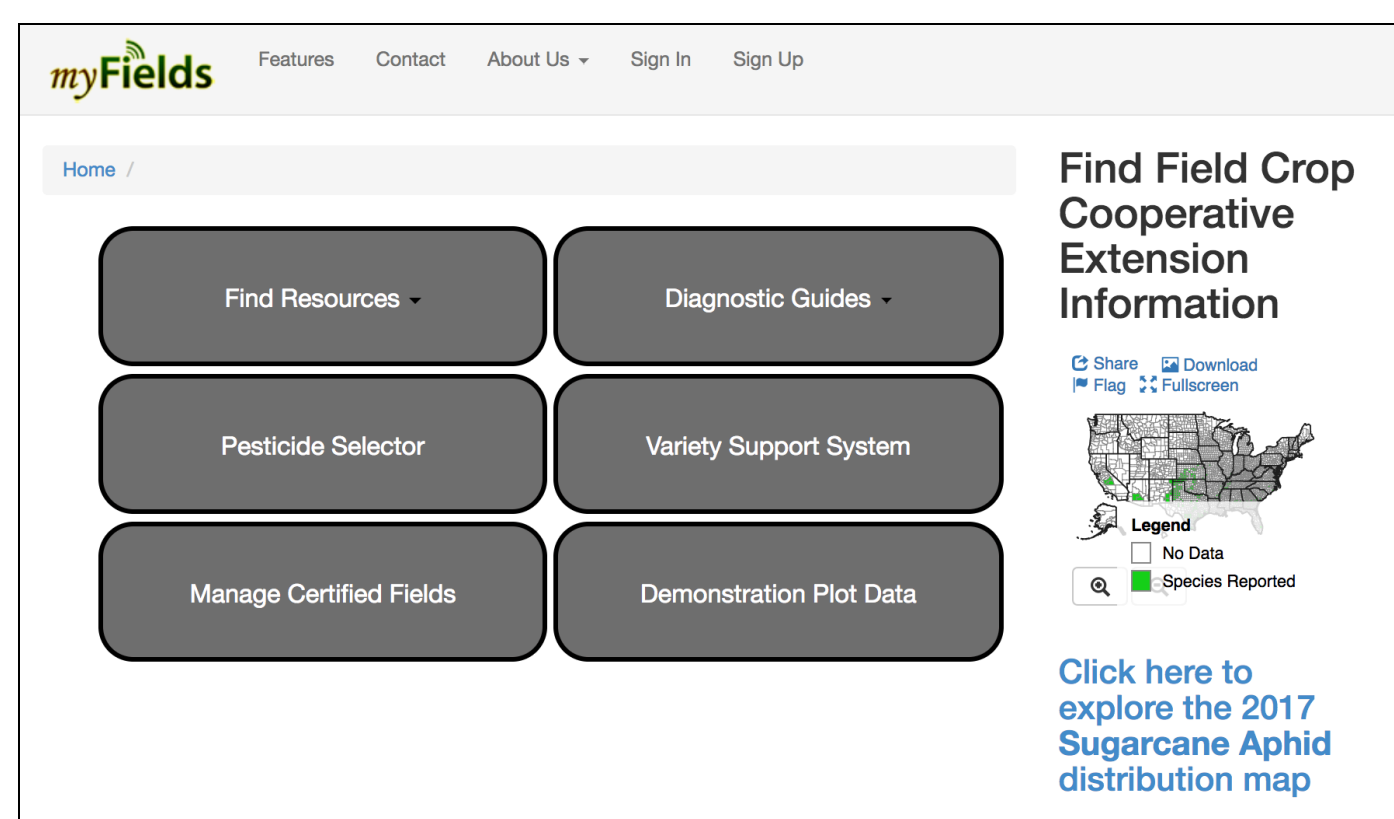
Times are changing; however, our current state of extension information delivery has not yet evolved to match user need. For example, Kansas farmers can sometimes only find crop management information on the KSU website as downloadable PDFs, or mailed paper booklets. Some of the past attempts at online extension delivery, such as the eXtension program, have not succeeded in adoption by target audiences (1). Several studies found that ease-of-use and awareness of eXtension hampered its adoption (2,3). We will use the lessons learned from the eXtension project for developing and promoting a new online program, a customizable extension experience, myFields.info (see below).

- **Purpose:** To insure good adoption of our website among users, we want to optimize usability through training users in order to enhance their experience. **Specifically, we'll ask whether promoting tutorials prior to using our online tools will improve a user's 'time to a management decision' and 'ease of use'.**
- **Study System:** For this study, we used students enrolled in an entomology class for experiments that allowed us to track their experience using myfields.info to find pest management information in two treatments, those with site training and those without.
- **Question:** Does promotion of tutorials for our online tools improve a user's 'time to a treatment decision' and 'ease of use'?
- **Hypothesis:** Students exposed to tutorials would have an easier time finding information they needed.
- **Prediction:** Students will answer pest management questions faster, and more accurately, if they watch a tutorial on using site tools first.



Experiments were conducted with KSU students enrolled in Pest Diagnosis (ENTOM612).

myFields



This site provides free tools with pest management recommendations for field crops.

Methods and Experimental Design

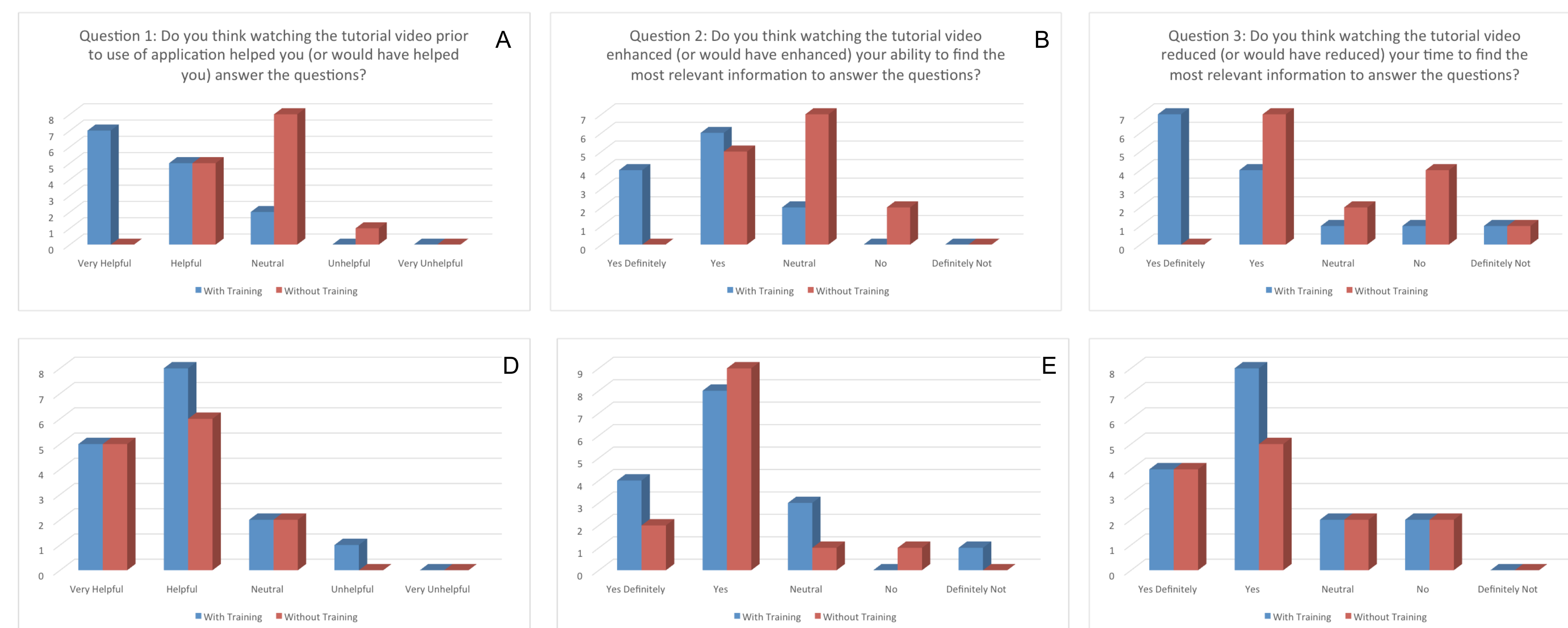
- We put together two experiments that focused on use of two separate myFields.info tools: the Pesticide Selector and the Diagnostic Guide. For either experiment, we created a handout composed of three questions on pest management in field crops for students to complete while we tool data on time needed to find correct answers. We also told the students that site user tracking software (Mouseflow) was running in the background of the site that anonymously tracked pages visited and time spent. We also created a post activity questionnaire to see how people felt about their experience using the site, with or without prior training.
- To facilitate training, we created a short tutorial via YouTube showing a step-by-step process of how to search for information using either tool. Half of the students watched the tutorial prior to an activity on finding information using myfields.info on their personal mobile devices.
- The first experiment (**Pesticide Selector**) was conducted on October 18 in both ENTOM612 lab sessions. The second experiment (**Diagnostic Guide**) was conducted on November 1 in the same lab sessions. The activity was run in the same manner, using the same student subjects in either trained or untrained treatment groups.
- Mouseflow data collected on students in either treatment group included their workflow through myfields.info pages, time spent on each page, and total session time. For both experiments, we compared the number of pages visited, time spent, and the accuracy of answers for each handout question between the treatments (Tables 1 and 2). Then, we compared responses to the post activity questionnaires between treatment groups (Figure 1).

Results

Tables 1 & 2. Data collected (# of pgs. visited, time spent and accuracy) from handout answers on Experiment 1 (Table 1: Pesticide Selection) and Experiment 2 (Table 2: Diagnostic Guide).

Table 1	Lab 1	Trained	Untrained	Table 2	Lab 1	Trained	Untrained
# Pages Visited		25.7	31.3	# Pages Visited		25.4	26.4
Time Spent		6m 20s	9m 8s	Time Spent		7m 33s	7m 18s
Accuracy of answers		27%	46%	Accuracy of answers		13%	27%
	Lab 2	Trained	Untrained		Lab 2	Trained	Untrained
# Pages Visited		28	32	# Pages Visited		21.2	24.4
Time Spent		7m 32s	7m 0s	Time Spent		8m 7s	7m 25s
Accuracy of answers		46%	39%	Accuracy of answers		22%	7%

Figure 1. Responses to questionnaire for Experiment 1 (A-C) and Experiment 2 (D-F) on site experience.



Conclusions

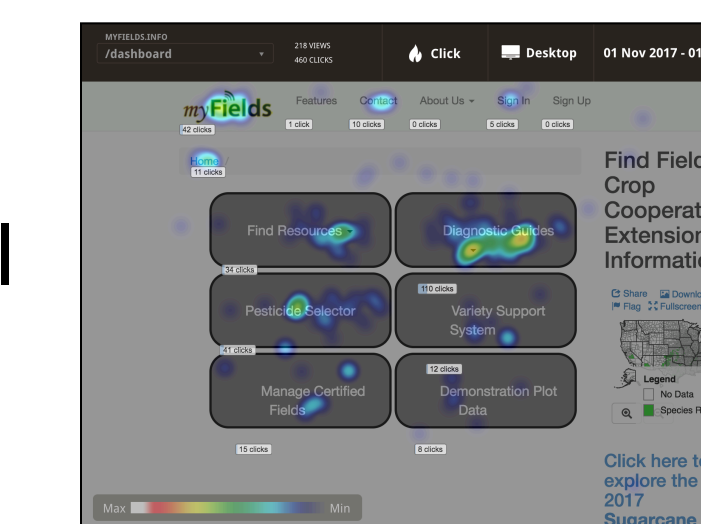
- The results show that the tutorials had no strong effect in terms of time-savings in the process of finding information, which may be due to the underlying tech-savvy nature of college students.
- However, in both experiments, we found that the trained individuals visited less pages than the individuals without training.
- The first experiment resulted in hardly any inaccuracies in handout answers, compared to the second experiment which had resulted in inaccuracies answering pest questions; perhaps due to the difference in experiment topic (pesticide selection vs. pest identification).
- The tutorials result in increased accuracy of answers, but only for the second lab.
- Regardless of the handout responses, all students seem to find the tutorials helpful, or desired, based on the questionnaire responses.

Future Directions

This study could be improved by:

1. Incentivizing participants that volunteer their time. This would ensure that the participants cared about the results of the experiment.
2. I would have also had a longer tutorial for the second experiment to see whether it would help to improve the 'with training' participants scores.
3. We could better understand if the website layout was causing navigation problems in either group by using Mouseflow's Heatmap feature (shown below) to track navigation by users.

Future experiments might take advantage of Mouseflow heatmaps that indicate how well users navigate a website.



References

1. Xu, X. and K. Kelsey. 2012. Will eXtension survive? *JOE* 50:6
2. McCornack, B.P. and W.A. Johnson. 2016. Getting Growers to Go Digital: The Power of a Positive User Experience. *JOE* 54:4
3. Jones, M., D. Doll, and O. Taylor. 2014. Extension Must Adopt Mobile-Friendly Websites. *JOE* 52:6

Acknowledgements

We thank the ENTOM612 instructor, Dr. Brian McCornack, and teaching assistant, Steven Losey, for generous use of their classroom time. Also thanks to the Undergrad Research Experience in Entomology Director, Dr. Jeremy Marshall.