

Climate Change Mitigation Outreach Experiment

Should climate change programs mention climate change?

Background

In 2015, the U.S. Department of Agriculture (USDA) initiated its Building Blocks for Climate Smart Agriculture & Forestry initiative. The initiative consists of ten building blocks that span a range of technologies and practices that help agricultural producers reduce greenhouse gas (GHG) emissions, increase carbon storage, generate renewable energy, and adapt to climate variability and extreme weather events. Although the USDA has decades of experience engaging producers with new technologies and practices that improve producer welfare and the environment, it has little experience doing so in the context of climate change.

Unlike the environmental issues typically addressed by USDA programs—such as soil conservation, water quality, soil health, and wildlife habitat—climate change and its causes are more controversial. A 2012 poll of about 5,000 U.S. Corn Belt farmers reported that only 8% of respondents agreed that climate change is taking place and that human activity is the primary cause.¹ In light of such reports, USDA must carefully consider, and test, different ways to engage farmers in its new Building Blocks initiative.

Histosols Pilot Project

To test different forms of outreach, staff from CBEAR and USDA's Office of the Chief Economist, Natural Resources Conservation Service, Farm Service Agency, and Economic Research Service collaborated on a pilot project. The project targeted producers who farm on carbon-rich, organic soils, called histosols or "muck soils." When farmed, these soils tend to oxidize and release large amounts of GHGs. According to USDA staff, farmers on histosols are less engaged than the average U.S. farmer in USDA conservation programs. This pilot sought to encourage farmers (1) to seek more information on practices that could reduce GHG emissions from histosols; and (2) to consider participating in USDA programs that cover the cost of adopting these practices. All farmers would be encouraged, via mail, to go to a website to learn more about farming on histosols and USDA programs that could help them, and they would be encouraged to contact their local USDA offices for more information. Some would also be invited to an informational webinar.

This project sought to provide evidence that could inform three important questions about how USDA could best communicate with farmers. First, it sought to address the question of whether outreach materials should focus solely on historically- emphasized benefits like "soil health" and "local water quality" or whether these materials should also explicitly link farm practices to GHGs and climate change. In other words, could USDA spur new on-farm activities that contribute to the Building Blocks goals by discussing climate change or would this language turn farmers off?

Second, the project sought to evaluate the value of inviting farmers to a webinar about these issues. Of course, webinars require substantial staff time to develop and USDA was unsure whether this cost was worthwhile. Moreover, based on insights from behavioral science research in other contexts, CBEAR staff raised the question

of whether too many options for action in a single outreach message depress producer interest in taking any action.

Third, the project sought to develop evidence about whether, after multiple mail contacts, a personal follow-up phone call can be a cost-effective means to encourage farmers on histosols to learn more about USDA conservation programs.

Design

The team recognized that no amount of theory or field experience could answer these three questions. Instead, the CBEAR-USDA team decided to run a randomized controlled trial, similar to what health professionals run to test the impacts of new medical treatments. Over 10,000 producers who had farms on histosols in the Great Lakes region received outreach messages. However, which type of message they received was selected at random.

Half of the recipients received outreach language that explicitly referred to the farm's GHG emissions and their contribution to climate change. The other half received material referring only to soil health and local water quality issues (see online appendix for sample letters, and more details on the study design). About two-thirds of the farmers were randomly invited to participate in the webinar. To create a test of the impact of personal contact (without putting additional burdens on local USDA staff), the CBEAR team phoned about seventy of the webinar invitees to remind them about the invitation they had received and to encourage them to take action. See Fig. 1 for a schematic of the study design with its six outreach approaches.

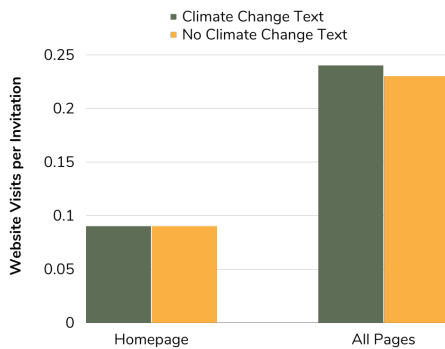
Results

To track responses, each message group had their own website address and each webinar participant had to log in with their name. To track local office contacts, the team will analyze USDA's Receipt for Service database. Because the outreach approaches were

Fig. 1 Experimental Design



Fig. 2 Climate Change Text Impact



assigned at random, the average effect of moving from one approach to another can be inferred simply by comparing the average behavioral responses for each approach. Simple statistical tests shed light on whether any observed differences could simply be the result of chance, rather than an effect of changing the outreach approach.

- **Language about GHGs and climate change did not deter producer action.** Website visitation rates per invitation (Fig. 2) and webinar participation rates were nearly identical between producers who were exposed to explicit climate- change text and those who were not. The visitation rates were slightly higher with the climate change text, but no greater than what one would expect from chance alone.

- **Few producers participated in the webinar and simply inviting producers to the webinar reduced their visits to the regular website by 50%.** The low participation in the webinar may have been, in part, due to its timing. A March webinar may have conflicted with the start of field work in the Great Lakes region. Better timing might have boosted participation rates. More troublesome was the observation that simply inviting producers to the webinar reduced visitation rates to the regular website by half (Fig. 3). This 50% reduction is more than one would expect simply by chance (fewer than 1 in 100 similar experiments would be expected to yield a difference so large just by chance).

- **Follow-up phone calls were not cost effective in encouraging greater producer participation.** There was no detectable difference in participation in the webinar or website visitation rates between call recipients and non-recipients. Thus, the evidence implies that phone calls were not worth their extra costs.

Conclusions

To be effective, the USDA Building Blocks initiative should be based on the best available evidence about producer responses to program outreach and attributes. The histosols experiment was an inexpensive, small-scale pilot that sought to begin developing this evidence base. The experiment yielded several key insights:

For references and more information about Climate Change Mitigation Outreach (Behavioral Insights Brief no. 4), visit www.centerbear.org or email CBEAR co-Directors, Paul Ferraro (pferraro@jhu.edu) and Kent Messer (messer@udel.edu).

Funded by USDA, CBEAR is a consortium of major research universities that uses the most modern science and methods to improve agri-environmental programs.

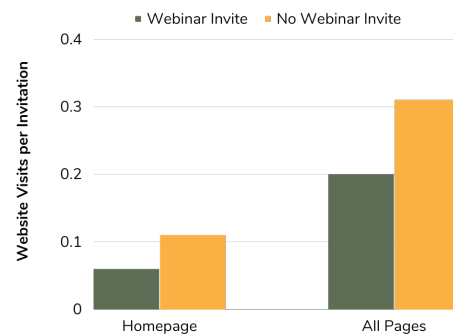
- **Farmers’ stated beliefs about climate change may not be good predictors of their actions in USDA programs.** Although further experimentation is warranted, the results do suggest that the Building Blocks initiative does not need to avoid referring to climate change and GHG emissions if it wishes to engage producers.

- **Webinars are not likely to be an effective way to engage agricultural producers.** Testing alternative ways of timing and advertising the webinars might be warranted, but such small changes are unlikely to lead to dramatic changes in participation rates.

- **Avoid offering producers a set of options for action all at once.** Consider offering options sequentially. Although people should be able to separate individual options from a set and decide which options they wish to pursue, behavioral experiments suggest that people can be overwhelmed by too many choices and subsequently fail to act on any of the options.

- **Phone calls from non-USDA staff are unlikely to be a cost-effective way of inducing greater producer engagement with USDA programs.**

Fig. 3 Webinar Invite Impact



Testing More Ideas

The experience with the histosols experiment emphasizes a point that CBEAR frequently makes: before launching or changing a program, experimental testing can be used to estimate possible impacts. With testing, we can design evidence- based programs with greater levels of participation, participant satisfaction, and improved environmental outcomes.

Future outreach efforts should try to replicate the results of the Great Lakes area experiment in other regions that may have different attitudes towards climate change (e.g., Florida, Northeast U.S.). Alternative communication strategies, such as highlighting national security benefits from climate change mitigation actions or enlisting local USDA personnel to make contact with producers, should also be tested. We should also move beyond testing changes to outreach, which are premised on the assumption that producers lack information or can be persuaded to act, and test changes to program designs. For example, simplification of enrollment procedures for producers on GHG- sensitive soils can be rigorously tested with randomized controlled trials (see Behavioral Insights Brief no. 3).