

IFPRI *Research Talks* Podcast Series
Episode 9- It's All in the Design: Soil Health Cards in India

Sivan: Hi and welcome to “Research Talks”, a podcast series that explores how research is making an impact on people and policies (with a focus on the ‘how’), brought to you by the International Food Policy Research Institute, IFPRI. I am your host, Sivan Yosef. Today, we’ll be talking about how to make products useful and persuasive to end users. Those all sound like marketing terms, don’t they? So what do they have to do with research? In this episode, we’ll be telling the story of how IFPRI researchers and partners set out to see if farmers in India were implementing the soil health recommendations that the government had distributed on cards. Instead, they discovered a totally different problem: the farmers couldn’t even understand the cards. Here’s Vartika Singh, a researcher from IFPRI working on the project.

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Hello, I'm Vartika Singh. And I'm based out of IFPRI's South Asia Regional Office in New Delhi. The major program that I work on is called the Cereal Systems Initiative for South Asia. This project is targeted at looking at sustainable intensification agricultural technologies in the Indo Gangetic plains of India, but also Nepal and Bangladesh.

Sivan: This story starts in 2014. IFPRI did a study in Bihar, a state in India. Researchers had designed soil health cards to give out to farmers. The cards were like report cards. They told farmers all about the health of their soil and what levels of nutrients are appropriate for their crops. Vartika explains.

Vartika: In India, farmers overapply certain nutrients which are highly subsidized by the central government. And so, they're available at much cheaper rates as compared to the other nutrients which are also useful but are more expensive. So, there is overall an imbalanced fertilizer application. So, the most commonly applied nutrient is Urea, which is the cheapest fertilizer available. It's actually cheaper than salt and it has high nitrogen content. So, you know, it boosts up production certainly, but over-application can also lead to poor quality of crops.

Sivan: Even though IFPRI’s initial soil health cards did not convince farmers to adjust their fertilizer use and avoid degrading their soil health, the government of India decided to release soil health cards as a national policy in 2015.

Vartika: The Prime Minister of India launched the soil health card scheme, with the objective of providing information to farmers on their soil health and also serving as guidance determining their input application

behavior. The idea was to provide farmers with information on the nutrients that they need to apply in proportions that are suitable for their crops and their soils. And the overall framework is that soil samples are collected from farmers' fields. They are analyzed in the test laboratories in their region, and results are shared with the farmers in the form of a report card as you can say, which provides information on the status of nutrients in the soils plus also targeted application rates that they should be looking forward to.

Sivan: What did the original card look like?

Vartika: The original card was an A4 sheet paper with printing on one side. It also had very basic information on farmer's name, their ID, their location, the name of the village. It also was supposed to have the coordinates of the farmer's plot from which the soil sample was taken. And then in the remaining part of the sheet, there was information on the crops that they would grow with options for the kind of fertilizers that they could apply. I would say application of nutrients and not fertilizers, because fertilizers come in brands, whereas we want to provide information on nutrients.

Sivan: So they went to every single plot and sampled the soil?

Vartika: No. Because it's not possible to go to every single plot to sample the soil, the idea was to select soil plots on a grid basis. So, the target for the first cycle over three years was 25 million farmers from whom samples should be collected or representative of those 25 million farmers.

Sivan: So IFPRI did an evaluation then of this original Soil Health Cards Scheme, correct?

Vartika: Yes, our first question was whether farmers were receiving the cards or not, which is why we went to the fields to speak with them. But we learned that most farmers had not received the cards at the time of our visits, but also the farmers that had received the cards did not understand and that is where our assessment actually began.

Sivan: Vartika and her colleagues were surprised that the farmers didn't understand the soil health cards.

Vartika: That was not on our radar at that time that farmers would not be understanding the cards; because the promise was that the cards will be very simple. It is only when we got to the field that we realized that not receiving the card wasn't the biggest problem. The biggest problem was not being able to understand after having received it.

Sivan: Vartika's team tried to think through why farmers might not be able to understand the cards.

Vartika: The biggest problem was that the card was, in terms of one of the farmers, the card was designed by scientists, and not by a lay person or a farmer himself or herself. So, the idea was that soil scientists had designed the cards. In their perspective, all farmers would understand it, but that was not necessarily the case.

So, in order to design the card in a more user-friendly manner, as part of the project, we decided to do a design testing. It's called user testing and is mostly used in marketing evaluations. So, we worked on the design of the product in itself. And for that, one of the major factors is the involvement of the end user. So, you know, if you don't involve the end user, you might design a very fancy product, but the end user might not find it useful at all. And there are several criteria that are kept in mind while designing a product such as this, which is I mean, number

one is usefulness, it also has to be attractive, it has to be comprehended by the reader, they have to find it relevant and also they have to find it persuasive.

Sivan: Did you have any experience with that kind of thinking? Because IFPRI is a research organization, so I would imagine that researchers don't often think about, you know, the usefulness to the end user.

Vartika: In our research team, we brought in a designer. This person has experience working with corporate partners, as well as several other businesses and research organizations in designing their campaign material.

Sivan: Vartika's team decided to run about 30 focus group discussions across three districts in Bihar.

Vartika: We brought both male and female farmers. We had a mix of farmers who had somewhat higher and lower levels of literacy. Our groups also involved both progressive and marginal farmers. These focus group discussions were conducted over a series of rounds from May 2017 to December 2017. And this was a very iterative process. So, in our first round, we took the existing soil health card to the farmers and had them read out to us the several different components of the card and what they thought those meant to them. After the first few rounds, we came back to the drawing table with the designer on our team. And then in the second round went back to the farmers, conducted in-depth interviews, as well as more FGDs...

Sivan: that stands for focus group discussions

... in Bihar. We also conducted some FGDs in Odisha, with an Oriya language card as well. And then from those learnings, we improvised the design once again.

Sivan: Can you give me some examples of what kind of things the farmers did not find relevant and what kind of information they did need?

Vartika: The first round was the biggest eye opener for all of us too, because in our team we had, we had soil scientists, we had researchers, agronomists, we had the designer, and we found that none of us had anticipated those problems to arise. So, for an example, the first section on the card shows soil test results, which is essentially a status check of the quality of your soil. So, on the table where soil health results are presented, the first component is pH, and it carries a value, which in acidic soils is less than seven, alkaline is more than seven. And then there's a range that is also provided that it should be in that value. Now, mind you that the card was in Hindi. And the idea was that pH if it was that important should have been translated into a more commonly known Hindi term. But it was a phonetic translation. So, it was literally 'ph' as in 'phone', as you would say. So, no one knew how to read it. None of the farmers in all several different rounds that we did, they did not know what 'ph' meant, and they could not comprehend what it was.

Sivan: The researchers also figured out that if farmers didn't understand the first two elements in the list, they would give up entirely. So they re-designed the card by listing the most familiar items first, like nitrogen or phosphate, so that the farmers would keep reading. There were a lot of other visual issues too.

Vartika: The font size was very small. A lot of farmers who had vision issues, found it difficult to read, and then again, also gave up. It was like a school report card that you could not expect a farmer, a marginal farmer in a rural area in India to be able to read. That was the biggest challenge. And like I said, one of the farmers quoted that, you know, "this was designed by a scientist and not by a farmer." So, you know, it posed a whole new set of challenges in itself.

Sivan: So how did you solve these various challenges with the new card?

Vartika: So thankfully, to the designer, we first worked on the design of the card. We realized that it did not have to have all the relevant information that was given. It had to be more visual than textual, because we want to also ensure that farmers who were not literate found the card useful too. So, we worked on semantics, we worked on design styles as well. We contemplated several different options such as you know, whether it should be a booklet form, or whether it should still remain an A4 sheet. And we assessed the possibilities because if the card was to be adopted by the state government, it still had to be cheap to print and distribute, because we could not design an expensive card. So, the major items that we worked on, were making it more visual, more colorful, depicting information through red, green and yellow colors instead of low, medium and high, using more signs and symbols, and presenting only the relevant information.

Sivan: Now did the Government of India, were they partnering with you during this whole phase? How did you know that they would adopt this new card?

Vartika: So, we were having constant interactions with our partners from the Ministry of Agriculture with the principal secretary and she was made aware of our developments from our end, but our direct partner was the Bihar Agricultural University, which is a State Agricultural University. They were involved in the process from day one. So two soil scientists from the Agricultural University were part of the research team and they accompanied us on the field visits, they accompanied us during the design process, and the idea was that they would be the first ones to adopt; and once it was found successful, or more relevant to the farmers, it would be presented at the national level.

Sivan: In early 2018, the newly redesigned soil health card was finally launched.

Vartika: The Bihar Agriculture University researchers and scientists decided that they would adopt the card for all their soil health card work moving ahead. In timely manner, a Farmer Fair was being organized by the University in February of 2018. They took the card to the Union Minister of Agriculture and had him launch in the presence of 10,000 farmers in this Farmer Fair that was organized.

We did not do any strategic surveys in terms of gathering data for analysis in terms of the final cards being adopted by farmers. But we did a few focus group discussions, along with the scientists that were in our team on our field visits in Bihar. We found that the farmers who had received the cards were able to understand it. Again, it's not possible for one design to be understood by 100% of farmers given the levels of heterogeneity that we see. But it was mostly found useful because a majority of farmers who had received the cards, were able to at least understand the information that was presented.

Sivan: Vartika's team is still gathering data on whether farmers, now that they can understand the soil health cards, are able to use the information to improve their farming practices.

Vartika: There is no evidence that is yet available to determine the differences in levels of actual farmer behavior change with different designs of cards. The primary challenge that remains in that, is not just the design of cards, but the content that was presented was also another problem because of the way soil samples were collected. It wasn't collected from every farm, it was collected from one random plot, chosen over 2.5 hectares of land, and farmers did not trust that information too well. And their concern remained that, you know, every soil is different.

So, I cannot trust the information that is presented on the card of my neighbor as well. So, there are still evaluations that are underway.

Sivan: From these many focus group discussions, Vartika met one especially interesting participant.

Vartika: In one of the focus group discussions, this person, he appeared to be very well read, and he was able to read the card very well not comprehend it, for sure, and that was very surprising because in none of the groups we found anyone could read the card as fluently as this person could. And then we later learned that he was a local cinema actor.

Sivan: What? Really?

Vartika: Yes, and he was back home and his father was a farmer. So, he was back home and he kind of lost his job. So he had gotten back to farming with his father. And so, I mean, he agreed that you know, I'm well-read, I've been living in the city, I'm an actor, but even I can't understand what this card is.

Sivan: Did you go back and find any of his movies or shows?

Vartika: We did, we did. Not that we understood, because those were, again, in the local vernacular language. But he was an actor for sure; that we checked. And I have a picture with him too.

As researchers, our goal initially was to, you know, to determine how many farmers received the card, whether that changed their behavior or not. But one important piece that we missed when we had our first research question in place was whether the product was understood. So that gave us this different perspective that we don't usually think of, in our research studies for that matter was that the technology or the product, or any other product that we want to take to the farmers and we want them to adopt it and change behavior has to also be perceived as useful by them.

Sivan: That's really interesting. And I think it would also apply to research products that we're producing for policymakers too, because policymakers are not necessarily, you know, technical people, they're not researchers. So, you need to think about the end user in that world too.

Vartika: Absolutely, absolutely. When we have conversations with policymakers, we've now over the course of the years changed our strategies to instead of sharing our journal articles with them, we now give them one page notes on very basic information of what our study did, and in bullet points, the key findings that they find useful, and that has turned out to be more successful than, you know, sharing our journal articles with them, which they would never have the time to read.

Sivan: Many, many thanks to Vartika Singh for her time. To learn more about CSISA—that's the Cereal Systems Initiative in South Asia—you can google C-S-I-S-A on the IFPRI homepage and find all their projects, including this particular one on soil health cards. And don't forget to subscribe to our podcasts so you don't miss a single episode of *Research Talks* from IFPRI. Till Next Time!