Donors

Implementing Partners

Evaluating development communication tools to better guide policy: The case of India's Soil Health Card

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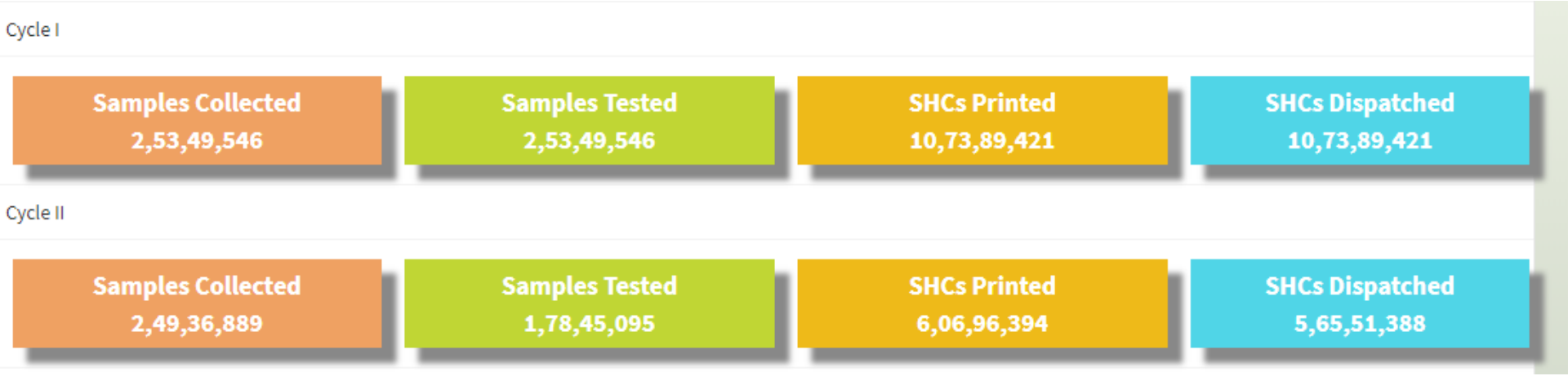
India's Soil Health card scheme

- **85 Million USD** Scheme launched by the Government of India in 2015
- Cards to carry information on crop-wise application of inputs (fertilizers and micro-nutrients)
- Factcheck - Indian agriculture currently faces double whammy of both over-utilization of important but cheap fertilizers and severe under-utilization of relevant micronutrients



IMPLICIT ASSUMPTIONS

- Soil health cards convey **meaningful and useful information** about soil quality and fertilizer application
- Smallholder farmers will be able to **understand** the contents of the soil health card
- Smallholder farmers will **trust** the quality and reliability of the information provided
- The information will **alter** farmers' preferences for best mix of fertilizers
- **No other constraints** inhibit farmers ability to act on these altered preferences.

IFPRI'S RESEARCH

- To better understand the relevance of the SHC's IFPRI conducted a study in 2015-16
- We found no effect of SHC on change in fertilizer application
- Self-reported reasons for 'status-quo' application include –

  "recommended doses in the SHC lower than current usage, so can't risk getting lower yields"

  "could not understand the recommendations"

  "never looked at the card after receiving it"

- Motivation to generate rapid evidence to provide relevant information to the policymakers

EXAMPLE

hairconfirm®
hair follicle multi-drug test kit

YOUR HAIR TEST RESULT

Specimen ID: 0601024
Date Collected: 3/29/2007
Date Received: 3/30/2007
Date Reported: 4/3/2007

HAIR FOLLICLE MULTI-DRUG TEST

This test screens for the following drug classes:

Amphetamines: Amphetamine, Methamphetamine and Ecstasy
Cocaine: Cocaine/Cocaine Metabolite (Benzoylecgonine, Norcocaine, Cocaethylene)
Opiates: Codeine, Morphine, Heroin Metabolite
Phencyclidine: PCP
THC Metabolite: Marijuana

Extended Opiates (Prescription Drugs)
Oxycodone: Oxycotin, Percodan, Percocet
Hydrocodone: Vicodin, Lortab, Lorcet
Hydromorphone: Dilaudid

Drugs Tested For	Result	Screening Cut Off Level*	Confirmation Cut Off Level*
Amphetamines	**Positive**	500 pg/mg	500 pg/mg
Methamphetamine	**Positive**	Positive	500 pg/mg
Cocaine/Metabolites	**Positive**	500 pg/mg	500 pg/mg
Cocaine	**Positive**		500 pg/mg
Benzoylecgonine	**Positive**		50 pg/mg
Norcocaine			
Cocaethylene	**Positive**		50 pg/mg
Opiates	Negative	300 pg/mg	
Extended Opiates	**Positive**	300 pg/mg	300 pg/mg
Hydrocodone	**Positive**		300 pg/mg
Phencyclidine	Negative	300 pg/mg	
THC Metabolite	**Positive**	1.00 pg/mg	.30 pg/mg

*picograms per milligram of hair

HAIR DRUG TEST RESULTS	Qty Found
Methamphetamine - Positive	**2305 pg/mg**
Cocaine - Positive	**1677 pg/mg**
Benzoylecgonine - Positive	**229 pg/mg**
Cocaethylene - Positive	**56 pg/mg**
Hydrocodone - Positive	**1322 pg/mg**
THC Metabolite	**1.49pg/mg**

A positive result indicates that the drug was identified at a level greater than its above listed cutoff and was confirmed by GC/MS.

REPORT NOTATIONS

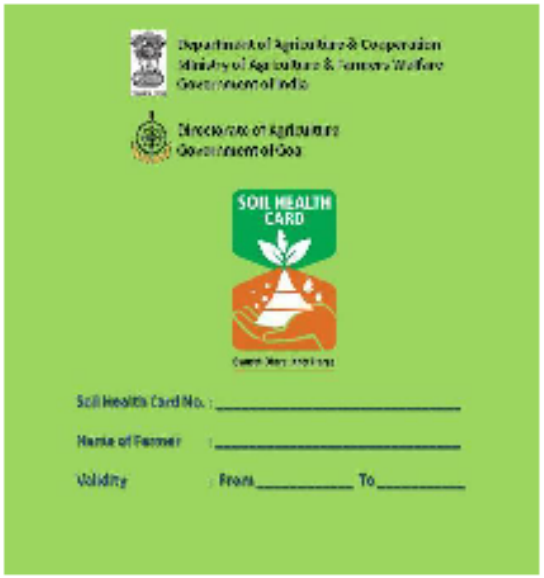
1.5 inches in length (approximately 0-90 day time frame)

HAIR DOSE RESPONSE

This chart will help you to determine whether the donor is a low, medium or high user by comparing the quantity found in the hair with the quantities listed below.

Hair Multi-Drug Panel	**Low use** (recreational)	**Medium use** (daily/weekends)	**High use** (constant)
Amphetamines	500-2500pg	2500-7500pg	7500+pg
Cocaine	500-2000pg	2000-10000pg	10000+pg
Opiates	300-1000pg	2000-8000pg	9000+pg
Phencyclidine	300-500pg	500-1000pg	2000+pg
Marijuana	*Qualitative – amount does not correlate to usage*		

This data was acquired from various academic studies with admitted drug users and are thus subject to numerous sources of variability (e.g., purity, inadequate self-report, etc.). Please use these graphs as a guide only and not as exact numerical interpretation. This information may be useful to help establish an appropriate type of rehabilitation program or to compare two separate time periods.



SOIL HEALTH CARD

Name of Laboratory :

Farmer's Details

Name	
Address	
Village	
Sub-District	
District	
PIN	
Aadhaar Number	
Mobile Number	

Soil Sample Details

Soil Sample Number		
Sample Collected on		
Survey No.		
Khasra No. / Dag No.		
Farm Size		
Geo Position (GPS)	Latitude:	Longitude:
Irrigated / Rainfed		

SOIL TEST RESULTS

S. No.	Parameter	Test Value	Unit	Rating
1	pH			
2	EC			
3	Organic Carbon (OC)			
4	Available Nitrogen (N)			
5	Available Phosphorus (P)			
6	Available Potassium (K)			
7	Available Sulphur (S)			
8	Available Zinc (Zn)			
9	Available Boron (B)			
10	Available Iron (Fe)			
11	Available Manganese (Mn)			
12	Available Copper (Cu)			

Secondary & Micro Nutrients Recommendations

Sl. No.	Parameter	Recommendations for Soil Applications
1	Sulphur (S)	
2	Zinc (Zn)	
3	Boron (B)	
4	Iron (Fe)	
5	Manganese (Mn)	
6	Copper (Cu)	

General Recommendations

1	Organic Manure	
2	Biofertiliser	
3	Lime / Gypsum	

International Year of Soils 2015

Healthy Soils for a Healthy Life

Fertilizer Recommendations for Reference Yield (with Organic Manure)

Sl. No.	Crop & Variety	Reference Yield	Fertilizer Combination-1 for N P K		Fertilizer Combination-2 for N P K	
1	Paddy (Dhaan)					
2						
3						
4						
5						
6						

Fertilizer Recommendations for Reference Yield (with Organic Manure)						
Sl. No.	Crop & Variety	Reference Yield	Fertilizer Combination-1 for N P K		Fertilizer Combination-2 for N P K	
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Name of Laboratory	

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12	Available Copper (Cu)			

End-users of Soil Health Cards

What did we do

- Conducted **user-tests** with end-users of the scheme i.e., farmers in 2 states of India

- This methodology is used to **test communication materials** with end-users, actively involving them in the process

- Detailed FGD's with over 200 farmers and in-persons surveys with 56 farmers, including women

- Tested current government's soil health cards with respondents

What did we find

- Around 40% of our sample farmers had not received the cards at all

- Of the 60% who received, only 20% had taken a look at it, but not understood. Those who understood did not trust the recommendations

- Others stored it safely in their cupboards with land record papers

- Those who had received the cards read it for the first time in front of the research team

- **Essentially same results from the previous study!**

What did we do….again

- Hired a design expert who was not a scientist !!
- Included more graphics into the design
- Changed font sizes
- Used local terms and not scientific notation
- Included contact details for further query
- Included symbols for levels instead of numbers, and many more…
- Tested current government's soil health cards with respondents, redesigned, retested, redesigned, retested, redesigned, retested…..

OUTCOMES

- A thoroughly tested new design of soil health card, with a state agricultural university

- Evidence on interpretability, ease of handling and trust amongst end-users

- Adoption by our partner State Agricultural University, acceptance of the need for change by the Union Ministry of Agriculture and willingness to adopt

What was different?

- Collaboration with a state agricultural university in the entire process – ready buy-in of results!
- Rapid results– not an RCT that would run for several years **(an RCT is still needed!)**
- Scalable across the country with little modification needed
- We have other ongoing studies to understand what would motivate farmers to change behaviour – this study allowed us to build trust within the stakeholders

मिट्टी की जाँच के आधार पर पोषक तत्वों की सलाह

पोषक तत्व	मात्रा (किलोग्राम/एकड़)		
	फसल का नाम		
नाइट्रोजन (N) किलोग्राम/एकड़			
फॉस्फोरस (P_2O_5) किलोग्राम/एकड़			
पोटाश (K_2O) किलोग्राम/एकड़			
जिंक किलोग्राम/एकड़			
अन्य किलोग्राम/एकड़			

अतिरिक्त सलाह:

प्रभारी पदाधिकारी के हस्ताक्षर

फोन नं० :

प्रयोग विधि :

- गोबर/हरी खाद/वर्मी कम्पोस्ट का प्रयोग खेत तैयार करते समय मिट्टी में मिलाकर करें।
- सिफारिश की गई फॉस्फोरस और पोटाश उर्वरक की पूरी मात्रा बुआई के समय दें।
- नत्रजन उर्वरक की मात्रा, बुआई के समय एवं सिफारिश की गई फसल की अवस्थानुसार दो या तीन बार में करें।

सत्यमेव जयते

सॉयल हेल्थ कार्ड संख्या : _____

किसान का नाम :
पिता/पति का नाम :
लिंग : ☐ पुरूष ☐ स्त्री
वर्ग : ☐ सामान्य ☐ पिछड़ा वर्ग ☐ अनुसूचित
☐ अति पिछड़ा वर्ग ☐ अनुसूचित जन-जाति

आधार संख्या :
मोबाइल नंबर :

गाँव : पंचायत :
प्रखंड : जिला :
डाकघर पिन सहित :

मिट्टी :
मिट्टी नमूना लेने की तिथि : मिट्टी जाँच की तिथि :
पूर्व में ली गई फसल :
उगाई जाने वाली फसल :

खसरा नंबर :
क्षेत्रफल : ☐ सिंचित ☐ असिंचित

अक्षांश (N) : देशांतर (E) :

मिट्टी जांच परिणाम

उपलब्ध पोषक तत्व	मिट्टी जाँच स्तर		उचित मान
नाइट्रोजन (N) (कि०ग्रा०/एकड़)		कमी मध्यम अधिक	100.0 से 200.0
फॉस्फोरस (P_2O_5) (कि०ग्रा०/एकड़)		कमी मध्यम अधिक	10.0 से 20.0
पोटाश (K_2O) (कि०ग्रा०/एकड़)		कमी मध्यम अधिक	50.0 से 120.0
सल्फर (मि०ग्रा०/कि०ग्रा०)		कमी मध्यम अधिक	10.0 से 20.0
जिंक (मि०ग्रा०/कि०ग्रा०)		कमी मध्यम अधिक	0.78 से 1.2
ताम्बा (मि०ग्रा०/कि०ग्रा०)		कमी मध्यम अधिक	0.60 से 1.2
लोहा (मि०ग्रा०/कि०ग्रा०)		कमी मध्यम अधिक	7.0 से 12.0
मैंगनीज (मि०ग्रा०/कि०ग्रा०)		कमी मध्यम अधिक	3.0 से 5.0
बोरॉन (मि०ग्रा०/कि०ग्रा०)		कमी मध्यम अधिक	0.5 से 1.0
पी एच मान		कमी मध्यम अधिक	6.5 से 7.5
जैविक कार्बन (%)		कमी मध्यम अधिक	0.5 से 0.75
ई०सी० (डे०सा०/मि०)		कमी मध्यम अधिक	2.0 से कम
अन्य			

कमी मध्यम अधिक

सलाह

खाद एवं उर्वरक		मात्रा (फसल का नाम)		
गोबर की खाद/कम्पोस्ट (क्विंटल/एकड़)				
वर्मी कम्पोस्ट (क्विंटल/एकड़)				
यूरिया (46%N) (किलोग्राम/एकड़)				
डाईअमोनियम फॉस्फेट (18%N, 46% P_2O_5) (किलोग्राम/एकड़)				
सिंगल सुपर फॉस्फेट (16%P, P_2O_5) (किलोग्राम/एकड़)				
म्युरिएट ऑफ पोटाश (60% K_2O) (किलोग्राम/एकड़)				
20:20:0:13 (एन:पी:के:एस) मिश्रण (किलोग्राम/एकड़)				
12:32:16 (एन:पी:के) मिश्रण (किलोग्राम/एकड़)				
बोरेक्स (11% B) (किलोग्राम/एकड़)				
जिंक मोनोहाइड्रेट/मोनो जिंक (33% Zn) (किलोग्राम/एकड़)				
हाइड्रेटेड जिंक सल्फेट (21% Zn) (किलोग्राम/एकड़)				
भूमि सुधार हेतु चूना/जिप्सम/पाइराइट की मात्रा (किलोग्राम/एकड़)				

Thank you!

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