### **EFFECTIVE FARMER COMMUNICATION:**

### A critical component of achieving IPM

Part 4: The importance of understanding farmer behaviour and decision-making for effective communication – Field Lessons







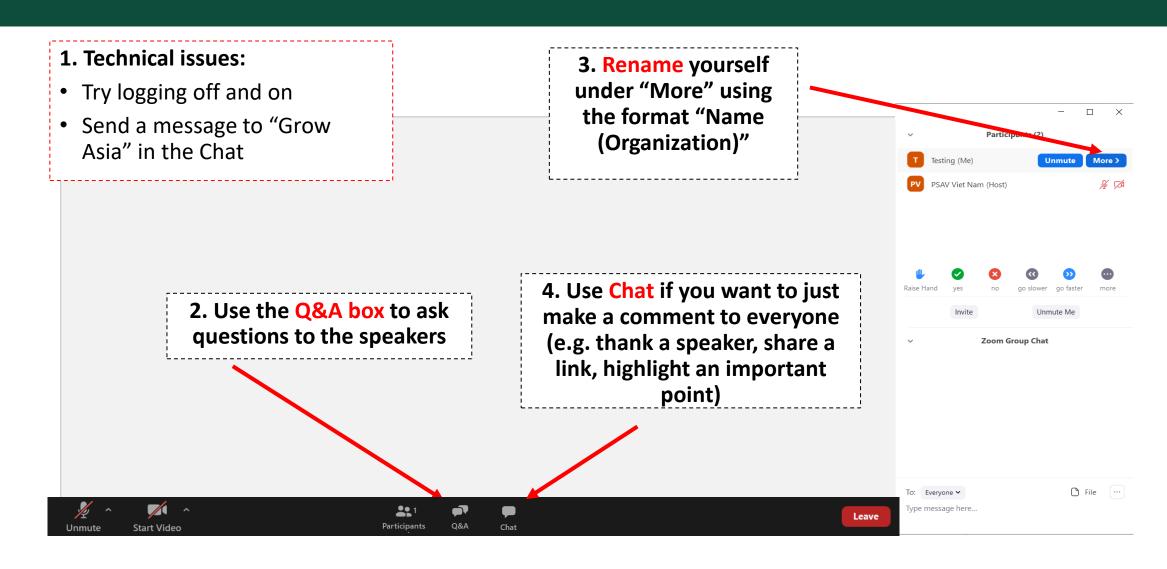






Time	Agenda Item
10:00	Introduction
10:05	How powerful are social relations in driving farmer adoption of new technologies and practices?  Brian Cook, University of Melbourne
10:15	Q & A Session
10:25	What factors can drive behavioural change in rural communities?  Laura Kwong, Professor at UC Berkeley School of Public Health
10:35	Q & A Session
10:45	How do you design effective farmer pictorial education resources?  Rachana Devkota, University of Ottawa
11:00	Q & A Session
11:10	Why do some farmers adopt new technologies, whereas others don't? - Behavioural insights from South Asia Fay Rola-Rubzen, Deputy Director and Associate Professor, Centre for Agricultural Economics and Development, University of Western Australia
11:25	Q & A Session
11:35	How can we catalyze the adoption of farmer best management practices at scale?  Rica Joy Flor, IRRI
11:45	Q & A Session
11:55	Summary
12:00	Close

# A recording of the webinar will be made and be distributed 1 week after this session



### ASEAN Action Plan on FAW Farmer Communication Workshop Series

A four-part series to catalyse action on the development and design of more effective farmer communications on IPM and FAW control

- Session 1: Behaviour
- **Session 2:** Communication Channels
- **Session 3:** Pesticide Use & Behaviour
  - 2 Workshops Part A and Part B
- Session 4: Lessons from case studies

All the presentations and videos are at:

https://www.aseanfawaction.org/farmer-communication

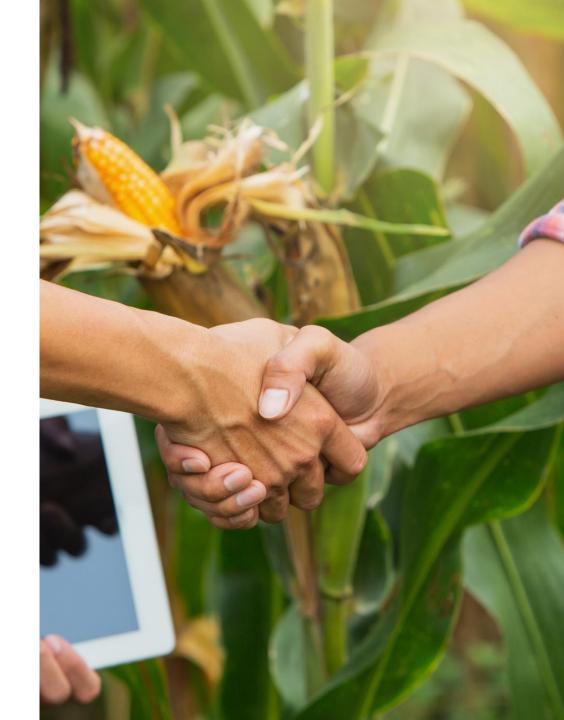
Case-Studies: We want your case-studies and examples – contact us at faw@growasia.org

#### Interactive

Give us your feedback and questions in the farmer communication forum at:

https://www.aseanfawaction.org/forum/farmer-communication

(if you wish to have a certificate of participation you must subscribe to the farmer communication forum and either ask a question, share something interesting about farmer communication)



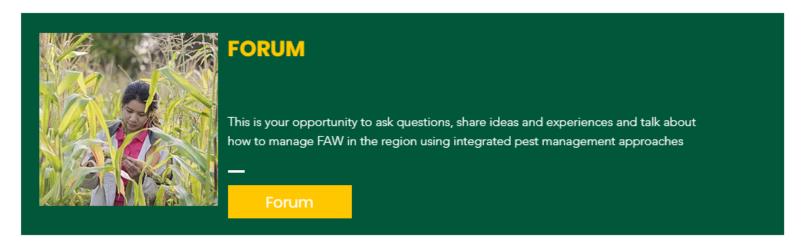


Research Organisations

RESOURCES

#### Community

Join our community through our blog, interactive forum, or by sharing more about your organisation and activities.



Any problems email: faw@growasia.org

Once you have completed this step please email <a href="mailto:faw@growasia.org">faw@growasia.org</a> to request participation certificate and please say which sessions you need a certificate for.





Farmer communication

How can we best communicate with farmers to ensure access to information on how to control FAW and improve IPM?

Following



Speakers

### How powerful are social relations?

What factors drive behavioural changes amongst Cambodian cassava farmers?

Presenter: Dr. Brian Cook

The School of Geography, Earth and Atmospheric Science
The University of Melbourne











#### Outline

- 1. Introduction
- 2. Outline (here)
- 3. Methodology
- 4. Findings
- 5. Argument
- 6. Conclusion





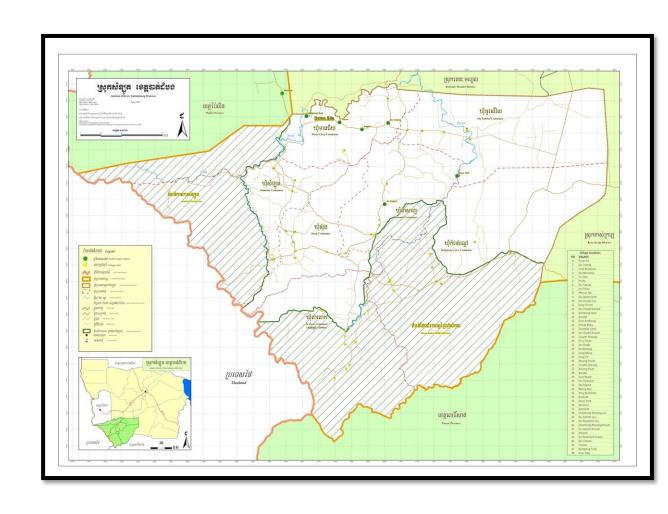
### Methodology

#### Theory of change

- From Deficit-to-Action
- Critique of communications (in simple/one-way forms)

#### Data collection

- 400 household surveys
- 300 household interviews
- 13 interviews with village leaders
- Intensive knowledge exchanges
- Repeat follow-up engagements with participants

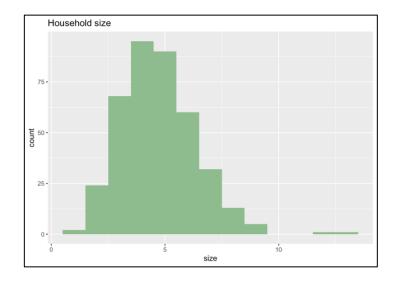


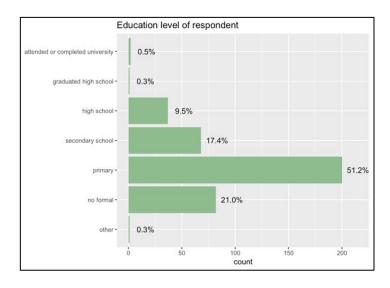
Cook, B., & Overpeck, J. (2019). Relationship-building between climate scientists and publics as an alternative to information transfer. Wiley Interdisciplinary Reviews: Climate Change, 10(2) Cook, B. R., Satizábal, P., & Curnow, J. (2021). Humanising agricultural extension: A review. World Development, 140, 105337.

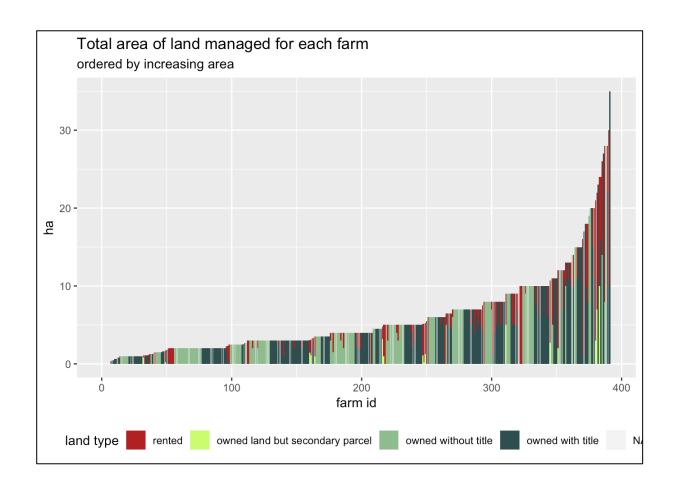




### **Quantitative Findings**











### Qualitative Findings: Why did you transition to cassava?

"I: At first, I planted rice. Then after rice, I planted sesame. Then I planted mung bean as everyone was planting mung bean. Then I planted corn because everyone was planting corn. I started planting cassava because all of my neighbours were planting it.

F: So will you stop planting cassava when your fruit trees grow big? I: Yes.

F: What made you change from cassava to fruit tree? I: I'm following the other farmers. I'm planting mangos."

"I: Farmers followed each other. So when one planted, another one started to follow."

"I: I used to plant sesame but when I saw other farmers doing cassava, I followed them.

*F:* Why did you follow them?

I: I saw they received very good yield in the first year so I wanted to try also. Our soil nutrition is depleting so I cannot plant every year on the same soil."

"I: Here we just followed each other. When we saw one planted, others started to follow no matter if it was corn or cassava."

**Analysis**: Neighbours are ~99% of the social relations shaping their practices.





### Qualitative Findings: How do farmers verify information or practices?

"I: My father planted cassava and got a good yield. So I planted cassava also."

"I: I saw other farmers planted cassava. I wanted to change from corn so I asked for planting materials from them and started planting cassava as well."

"I: I followed my mother. Besides, cassava is lower maintenance and cost less than corn. Also, it's easier to find labour for cassava than corn."

F: What reason will make you stop planting cassava?

*I: It's because the price drops cheap.* 

F: What will you plant instead of cassava?

I: I will see what the rich farmers do. I will plant whatever they plant.

<u>Analysis</u>: Family and (already) trusted relations are how farmers critically assess the effectiveness of information or awareness of a new practice.





### Qualitative Findings: Where do farmers get official information or advice?

**Analysis**: They don't. See neighbours.

"F: Did you ask for help/advice from anyone regarding to the problems facing growing cassava?

I: I asked my neighbours as they used to face the same problem as me.

F: Did you ask anyone else besides your neighbour?

I: I asked the pesticide seller. They are just small-scale sellers. They don't really have good knowledge on it.

F: Was there anyone from agriculture district office coming to raise awareness on cassava?

I: Yes there was. But I couldn't follow their precise practice. They taught us how to prepare the land, plant, and use pesticide. I don't have money to follow all the steps."

"I: I didn't ask anyone because everyone had the same problem."

"I: I saw other farmers sprayed pesticide but not effective. So I didn't do anything. Then the farmer whose farm got infected with red mite tried cutting the leaves and then the red mites were gone.

F: Were there anyone from PDA [Pailin Department of Agriculture] coming to raise awareness on cassava?

I: No there weren't."





### Qualitative Findings: What do farmers make of existing extension?

"F: Did you ask for help/advice from anyone regarding to the problems facing growing cassava?

I: I only asked my farmer neighbours. They didn't know what to do either. F: Did you only ask your neighbour?

I: Some people were driving pass by to Battambang told me that my farm still had some cassava left but for them, nothing left from their 1-2ha farms. All the stakes were dead.

F: Did you ask anyone else?

I: No.

*F:* Not even the pesticide seller?

*I:* They just told us to use the herbicide or liquid fertilizer but it wouldn't work.

F: Did you do any research or watch the news on TV about it?

I: I like watching the news but my children don't. They like watching entertainment show so they always change the channel.

F: So you never receive help from anyone with these problems?

I: No, never."

"I: I've never asked anyone except for my neighbour farmers but it's not really effective.

F: Are there anyone else or the specialist from agriculture department come to raise awareness on that?

*I:* No there aren't any."

**Analysis:** These individuals are extremely isolated – disconnected from (trusted) relations beyond neighbours, friends, and family.







### Qualitative Findings: The pesticide vender

"I: I've only asked my neighbours what to spray. Sometimes it worked, sometimes it didn't. F: Did you ever ask the pesticide seller?

I: Yes Í did. Sometimes it worked on the first time. And when I used for the second time, it didn't work.

F: Did you trust the pesticide seller?

I: Yes sometimes. Because I didn't know anything, so I think the pesticide sellers knows more than me. And the pesticide also helped a little bit about 20 out of 50. When the rain came, the cassava became good again."

"I: I only asked the pesticide seller because there's no one to ask. They then would give me pesticide to spray but it's not really working.

F: Did you trust the pesticide seller?

I: Not really. Some didn't have good knowledge about it."

"I: I asked the pesticide seller but it's not effective.

F: Why didn't you ask the specialist from agriculture department?

I: I don't know where and who to ask.

*F:* So do you trust the pesticide seller?

I: Sometimes. The pesticide they gave me for other crops worked but the one on cassava didn't."

"I: No I didn't. I didn't know who to ask. I just went to buy pesticide from the pesticide seller.

F: Why did you think the pesticide seller can help you?

I: Because I didn't know where I can get help besides going to buy pesticide from the pesticide seller.

F: Did you trust the pesticide seller?

I: At first I did. That's why I went to buy pesticide but since the pesticide didn't work, I lost trust in them.

F: Now you didn't buy pesticide anymore?

I: No I didn't. I only sprayed booster now."

**Analysis:** The pesticide vender is the only 'official' member of the agricultural sector who the farmers relate to. They rely on these individuals, but they are doubtful and suspicious because of the experiences of others and their own experiences in the past.

They are aware of the profit motivation of official extension activities, and therefore revert to their neighbours and trusted social relations to assess any new information or practices.

- Farmers are alone and subject to extreme precarity and exploitation (dispossession).
- Any action taken is debt-fueled and costly, making change an extremely difficult and complex choice.
  - They do not lack information, but trustworthy support.

#### Guiding question: How powerful are social relations?

They are everything.

### What factors drive behavioural changes amongst Cambodian cassava farmers?

Their neighbours, family members, trusted social relations.

#### What is the role for communication in this context?













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- twitter.com/NextGenAgExt
- brian.cook@unimelb.edu.au



### Next generation agricultural extension social relations for practice change













### **NORMalizing Mask-Wearing** & Scaling Up an Effective Approach



















### Team







Jason Abaluck, PhD Mushfiq Mobarak, PhD (Economics) (Economics)



Layla Kwong, PhD (Engineering/ implementation, public health)



Steve Luby, MD public health)



Ashley Styczynski, (Infectious disease, MD, MPH (Infectious disease, public health)

















### Motivation

Until the virus is eradicated globally, mask-wearing remains critical



Lab and quasi-experimental evidence: face masks slow spread of COVID-19

How to increase mask-wearing?

How effective in practice?



Widespread vaccination in lowincome countries may be more than a year away. New strains continue to emerge.



Critics: Mask wearers will engage in compensatory behaviors e.g. not physically distance.

Is this true?



How can mask distribution and promotions scale most cost-effectively?

# First large-scale study evaluating the effect of mask-wearing on COVID-19



Cluster randomized controlled trial (RCT) evaluation



Large-scale trial: 342,183 adults in 600 villages in rural Bangladesh



Tested two types of mask (cloth vs. surgical)



First Stage:
Test a portfolio of
strategies to increase
mask-wearing and the
impact of mask-wearing
on physical distancing



Second Stage: Evaluate the impact on rates of COVID-19



## Why Bangladesh?



Density of population

populous country and one of the most densely populated in the world



### Decline in maskwearing

- May 2020: 51% observed wearing mask
- June 2020: 26% observed wearing masks, 20% wearing correctly



12 year presence of IPA.

Strong

existing relationships with
relevant Bangladeshi
policymakers

#### The NORM model tripled community mask-wearing & reduced symptomatic SARS-CoV-2



No-cost

free masks distributed door-to-door

#### Offering information

on mask-wearing via video and brochures

#### Reinforcement

in-person and in public

#### Modeling

and endorsement by trusted leaders





## Measuring mask-wearing behavior

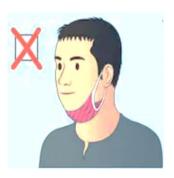
Plain-clothed staff discreetly record mask wearing behavior



appropriately wearing our project's cloth/surgical mask



appropriately
wearing a mask
that was not
distributed by our
project



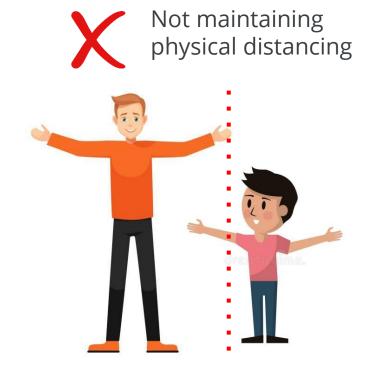
inappropriately wearing a mask/other face covering

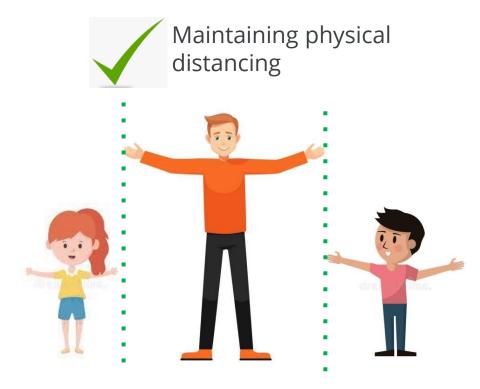


not wearing a face covering at all

# Measuring physical distancing

- For a person to be counted as physically distancing, she/he needs to be
   one arm's length away from all other people.
- We also measured "social distancing" -- how many people do we see in public?

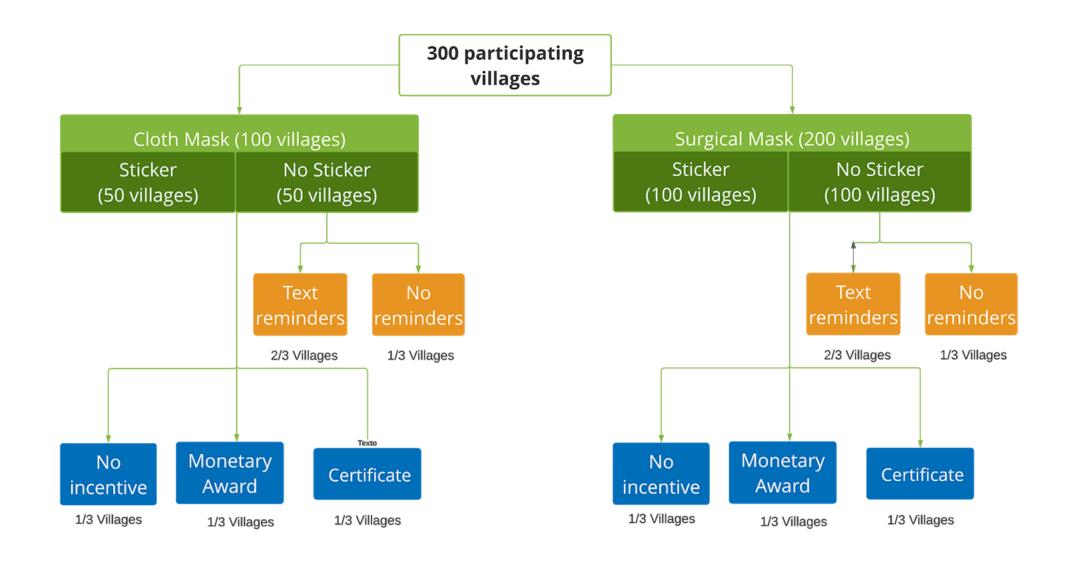




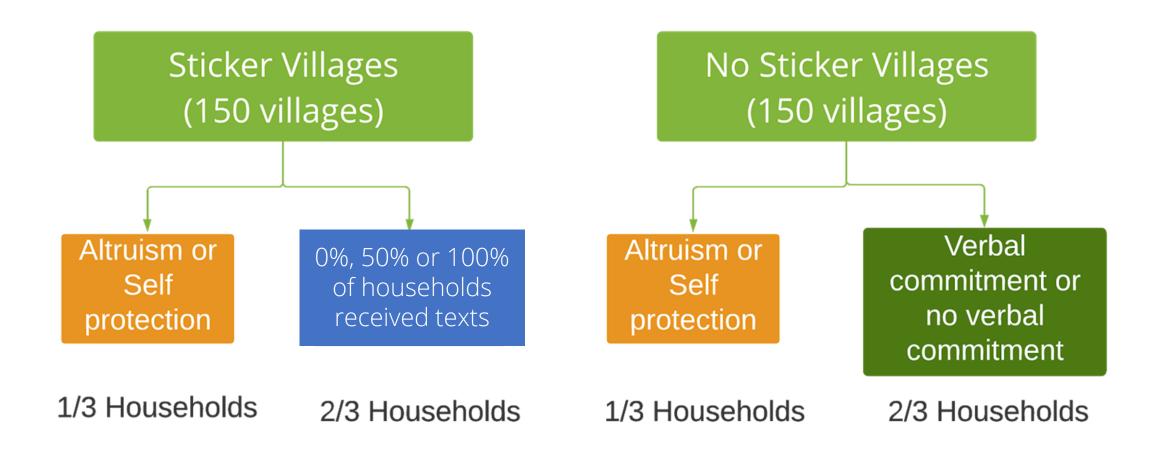
## **Measuring COVID-19**

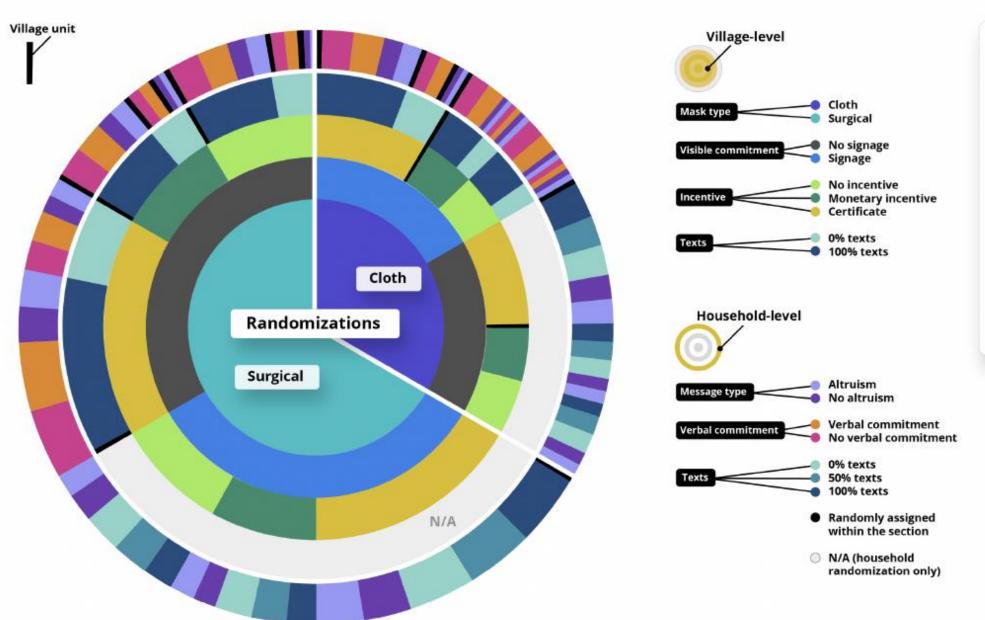
- Primary outcome: COVID-19 = symptomatic seropositivity (measuring asymptomatic transmission required a sample size infeasible give the budget)
- Symptom data from all household member at 5 and 9 weeks of the intervention (98% of households provided data)
- WHO-defined probable COVID-19
  - Fever and cough or
  - Three or more of (fever, cough, general weakness/fatigue, headache, myalgia, sore throat, coryza, dyspnea, anorexia/nausea/vomiting, diarrhea, altered mental status) or
  - Loss of taste or smell
  - For symptomatic people who consented (40%), we collected blood samples and tested for SARS-CoV-2 antibodies using an ELISA

### Village-Level Randomization



### **Household Level Randomization**











### **Timeline**

| July 22-31, 2020

#### Pilot 1

- Masks in mosques and markets
- Engagement with community leaders
- 2 rounds of observation data
- 1 round of phone follow-up surveys

Circulating SAR-CoV-2 variant: alpha Infection rate during study period: Low (~2%)



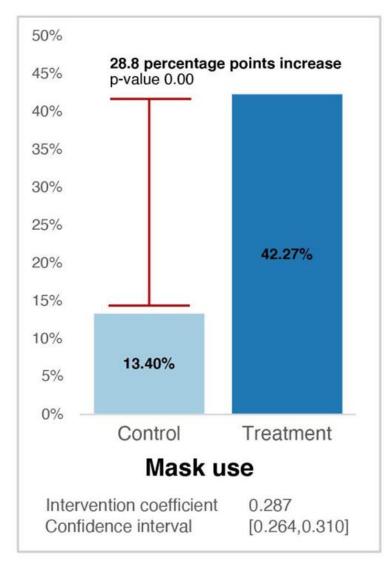
1st wave of intervention

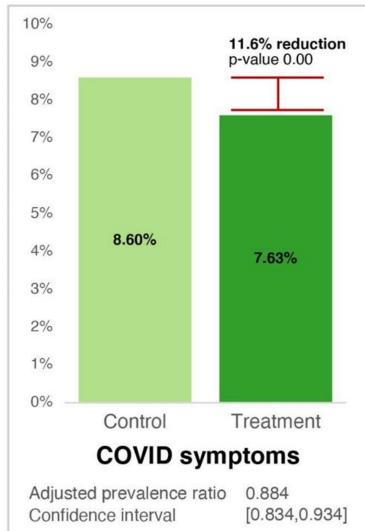


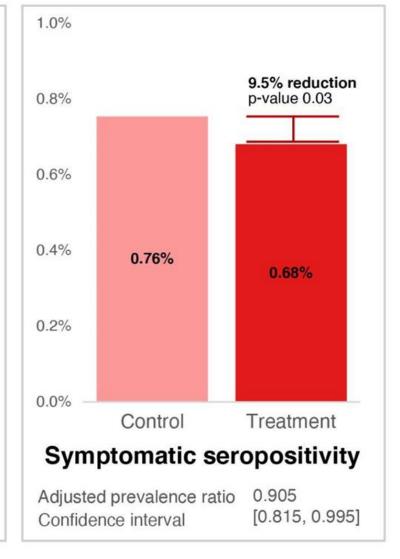
### Analytic methods (Pre-analysis plan: <a href="https://osf.io/vzdh6/">https://osf.io/vzdh6/</a>)

- 1. Ordinary least squares regression
- 2. Generalized linear model with a Poisson family and log-link function
- clustered at village-level
- controlled for pair, baseline symptoms & baseline mask-wearing, surveillance staff member
- heteroskedastic-robust standard errors

### **Main Results**











Free mask distribution & promotion increased mask wearing by 29 percentage points.

Full

No

Active

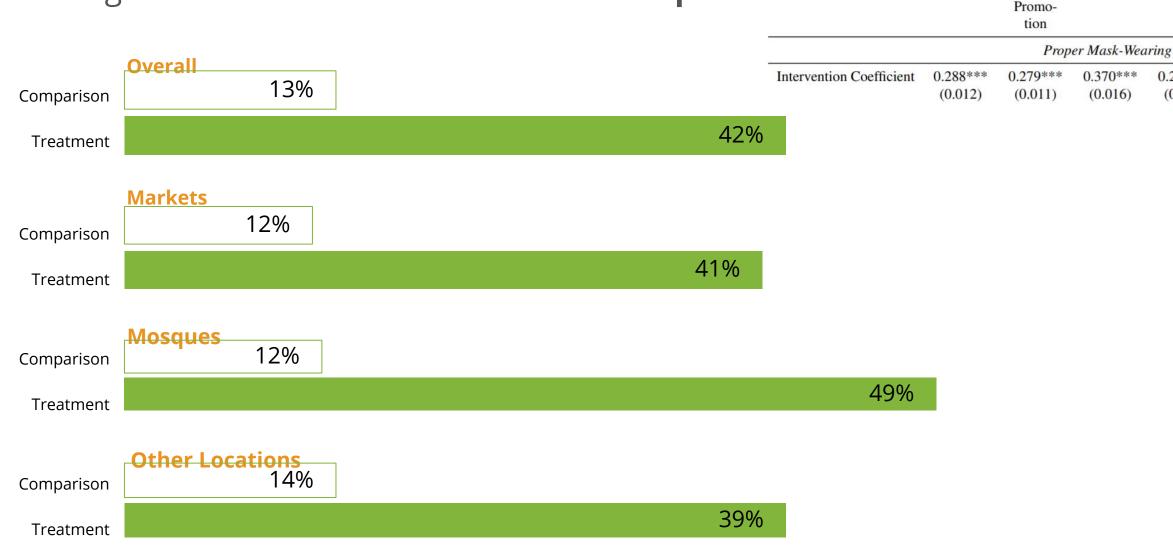
Mosques

Markets

0.287\*\*\*

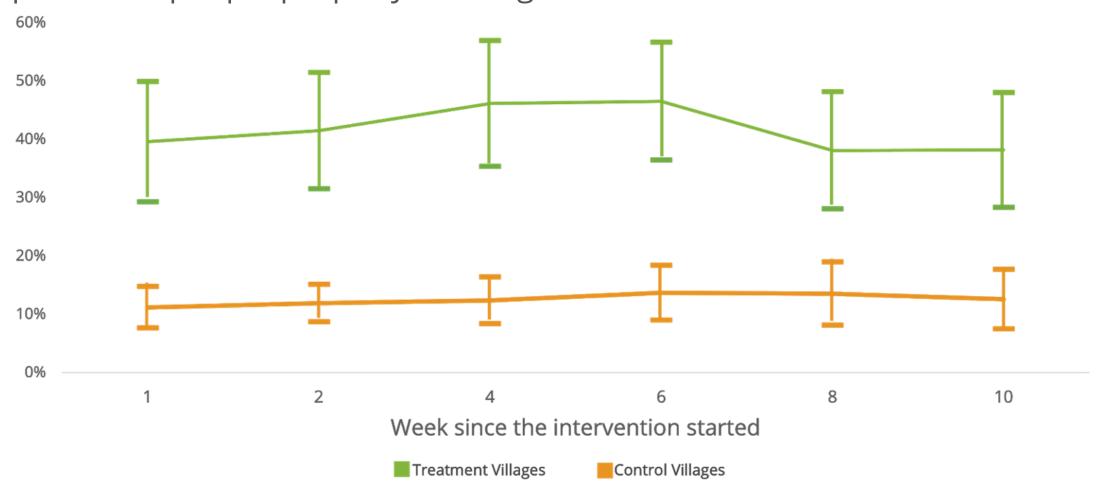
(0.012)

The largest increase in mask use was in **mosques** 



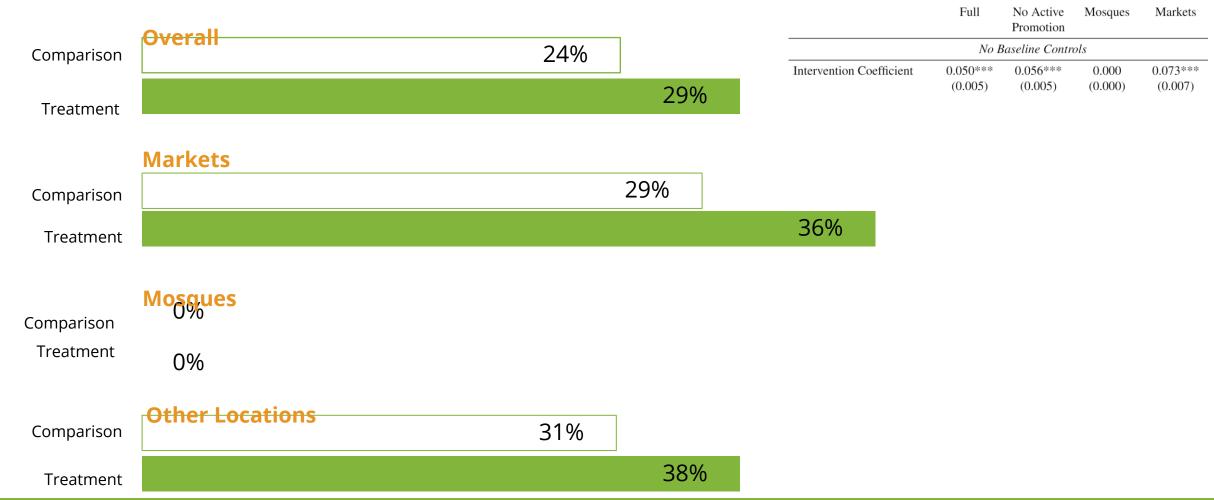
# Mask use was sustained 10 weeks into the trial, even after the NORM intervention ended

Proportion of people properly wearing a mask



### No change in social distancing; physical distancing increased

Effect was larger in markets; group prayer rituals inelastic to physical distancing





## Lessons Learned: What's Not Needed

### Not harmful but had no impact



#### **Legal Sanctions**

Having the village police accompany mask promoters had no further effect



#### Signaling to others

Putting signage on the door saying they were a "mask wearing household" had no effect



#### Verbal commitment

No effect of asking household members to make a verbal commitment to mask-wearing



#### Text message reminders

Twice weekly messages had no impact, even when sent to all households and whether framed as altruistic or self-protective



### Monetary incentives for village or its leaders

Offering \$190 if village attained 75% mask wearing rate did not have an effect on mask-wearing



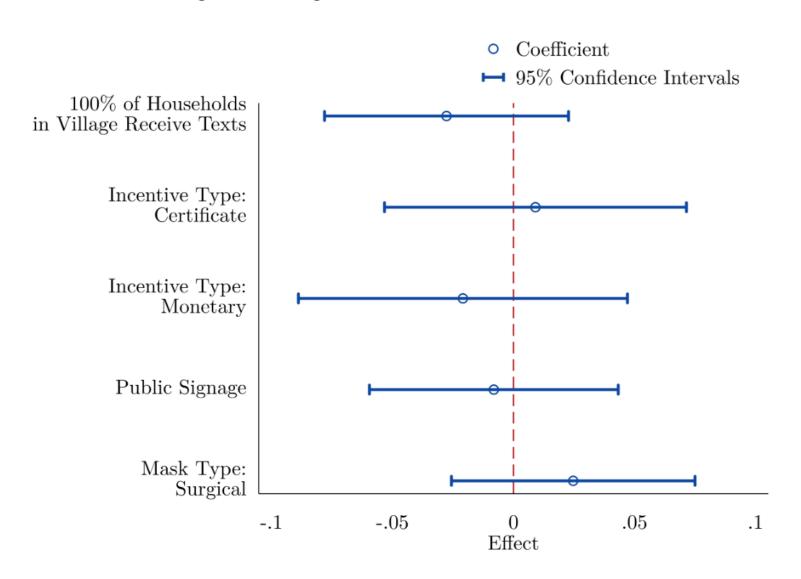
## Social rewards (non-monetary incentives) at village level

Promises of government-issued certificates for mask compliance had no effect



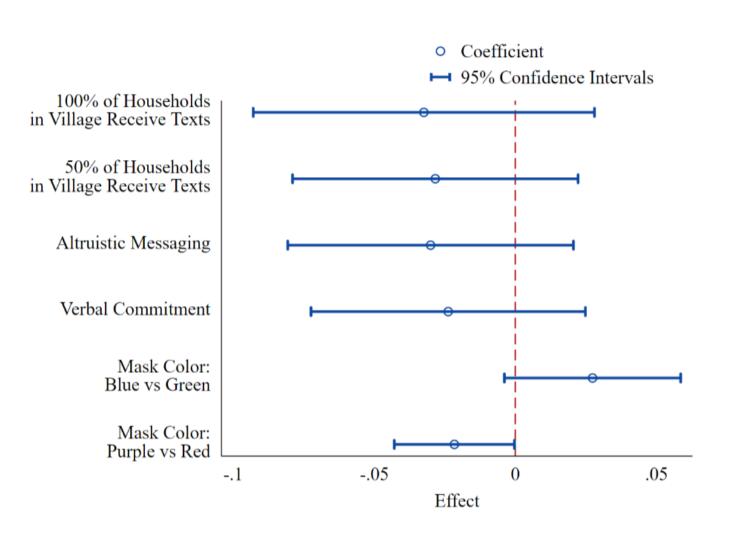
### Village-Level Cross-Randomizations

Figure 1: Village-Level Cross Randomizations



### Household-level Cross-Randomizations

Figure S2: Household-Level Cross Randomizations



### First Stage Results on Mask-Wearing

More details: <a href="https://tinyurl.com/Banglamask">https://tinyurl.com/Banglamask</a>



NORM intervention more than **tripled mask usage** (13% to 42%)



Reusable surgical masks (one-fourth the cost) were as likely to be adopted as cloth masks



Impact was **sustained** at least 10 weeks into the trial, including *after* intervention activities ended



In person
Reinforcement, and
monitoring is an
essential part of the
NORM intervention



NORM intervention increased physical distancing (5 percentage points)





### **Second Stage Results on Rates of COVID-19**

The NORM model reduced symptomatic COVID-19 by 9%



The research team asked all participants if they had **COVID-19 symptoms** in the past month



The NORM model reduced COVID-19 by 9%



Among people who selfreported symptoms, the research team conducted **serology tests** to detect the presence of SARS-CoV-2 antibodies

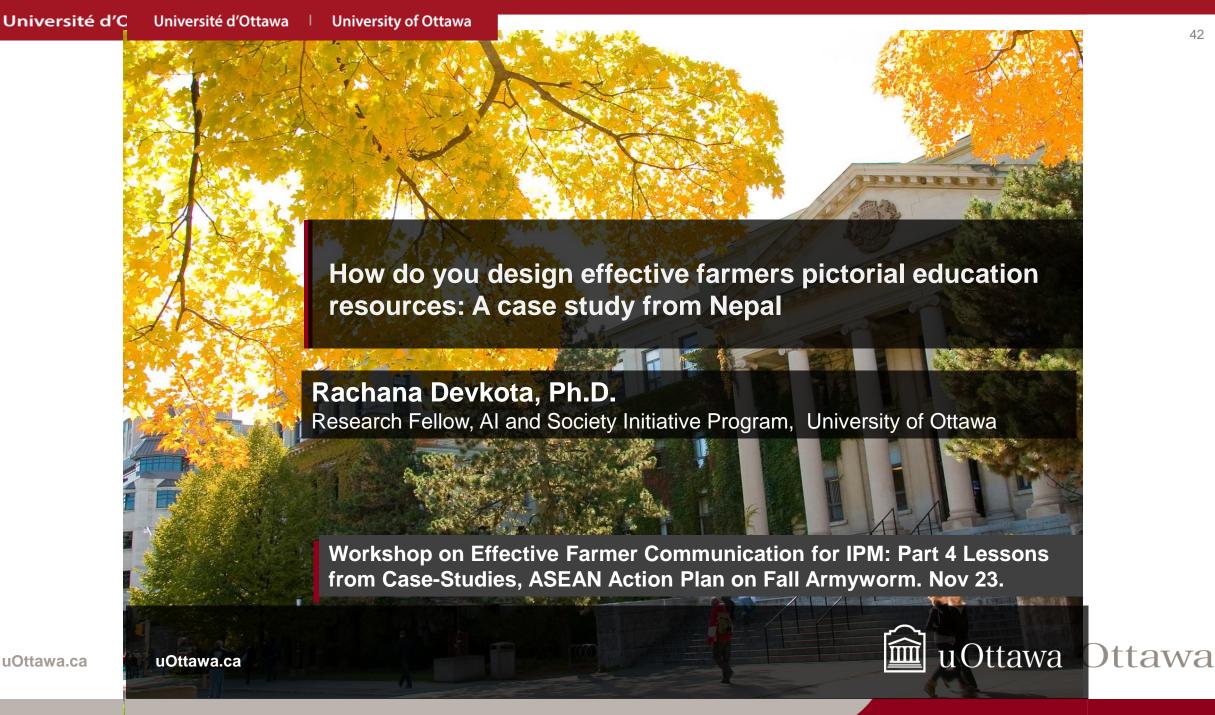


**Surgical masks** reduced COVID-19 by at least 11%. Surgical and cloth masks reduced COVID-like symptoms

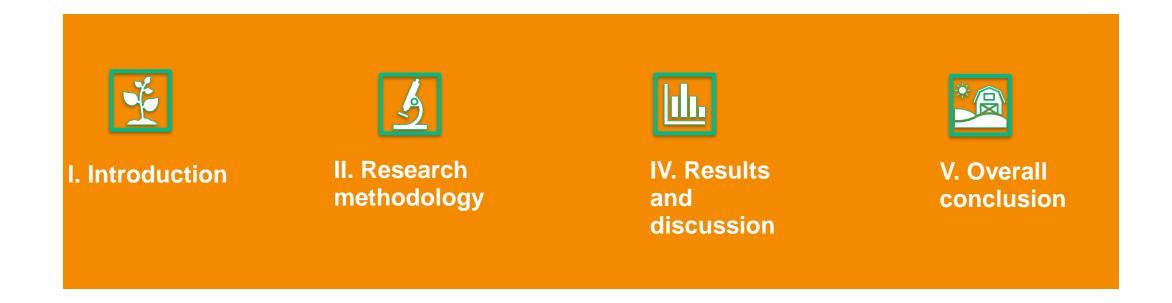


Surgical masks reduced COVID-19 by 35% for people aged 60+





### **Outline**





### **Case study from Nepal**

 Evaluating the Effectiveness of Picture-Based Agricultural Extension Lessons Developed Using Participatory Testing and Editing with Smallholder Women Farmers in Nepal

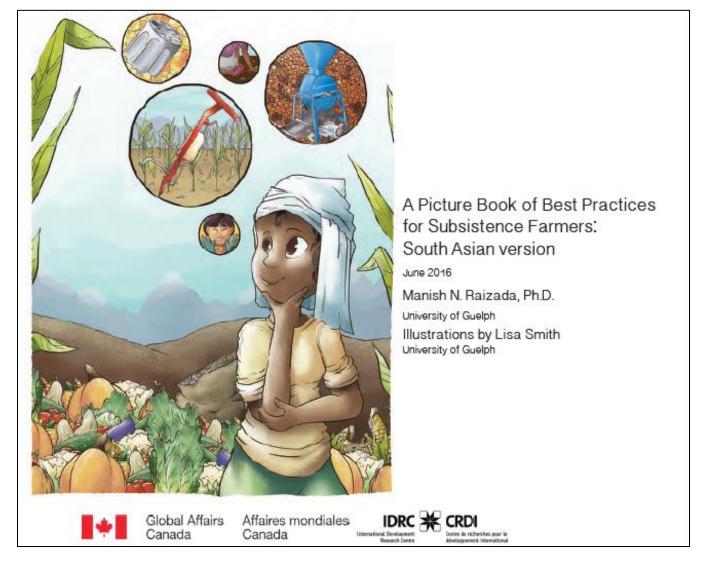


### Reducing female drudgery through small tools and practices

- Intervention of the IDRC funded project: "Nepal terrace farmers and sustainable agriculture kits" (SAK)
- One of the main objectives of the project is to reduce the workload of women through the testing and dissemination of small scale technologies and its associated information.
- Sustainable Agriculture Kits (SAK) = farmer purchased, low-cost menu of tools, materials, seeds, and practices, which are explained using picture-based lessons for illiterate women and men farmers (the SAK Picture Book).
- The book was created by agriculture Professor Manish Raizada and graphic artist Lisa Smith (Univ of Guelph)



Université d'Ottawa







## Evaluating the effectiveness of picture-based agricultural extension lessons with smallholder women farmers in Nepal

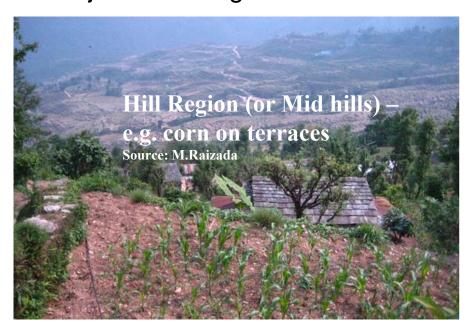
**Research question**: Does participatory editing and testing of the picture lessons increase the intention of smallholder farmers in rural Nepal to use/apply the lessons in order to improve their livelihoods?

#### Objectives:

- ❖ To explain the methodological procedure to develop participatory-based picture lessons
- ❖ To pre-test the effectiveness of farmer-edited lessons among primarily-women farmers at remote hillside locations
- ❖ To survey the smallholders for their preferred ICT
- ❖ To perform a perception survey among key agricultural scientists and extension workers on the value of picture-based methods as extension tools for smallholders.

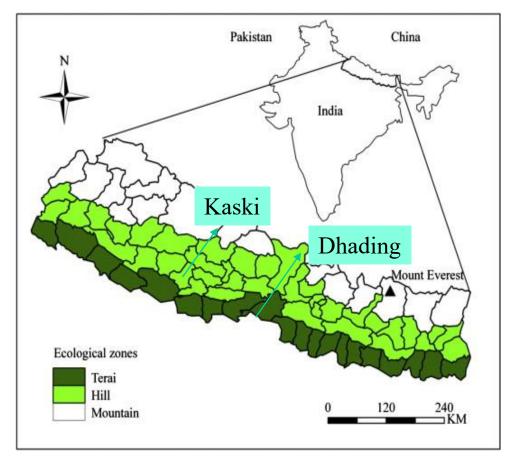


- Two districts of hills of Nepal
  - Jogimara village of Dhading district
  - Majhthana village of Kaski district



610 m to 4876 masl; Hill covers 42% of total land; 43% population resides

### **Study sites**



Source: LI-BIRD



### Process of picture lesson development & data collection





### **Data analysis**

- ❖ Theory of Planned Behavior is used as an analytical framework to evaluate findings from 20 lessons.
- Descriptive data analysis using excel and SPSS.
- Qualitative data from stakeholders analyzed using Nvivo 11.

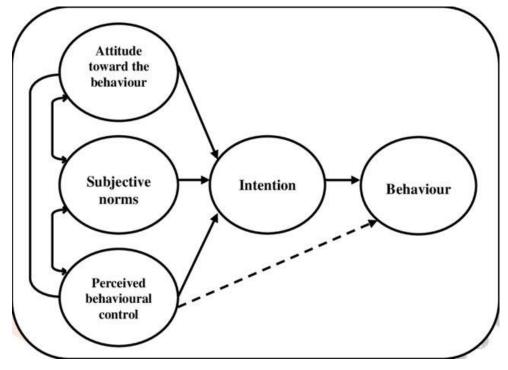
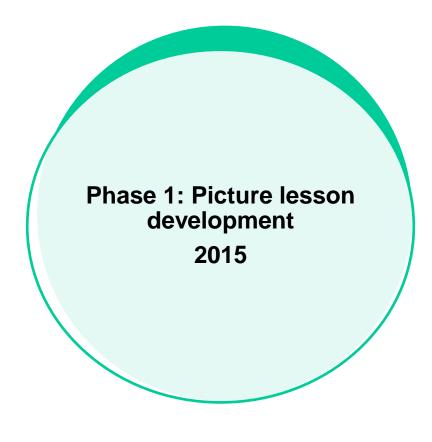


Figure: Theory of Planned Behavior



### **Key findings**

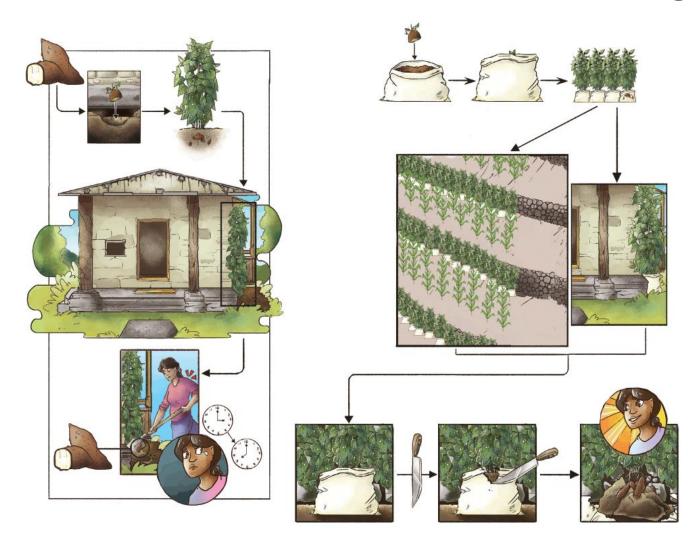




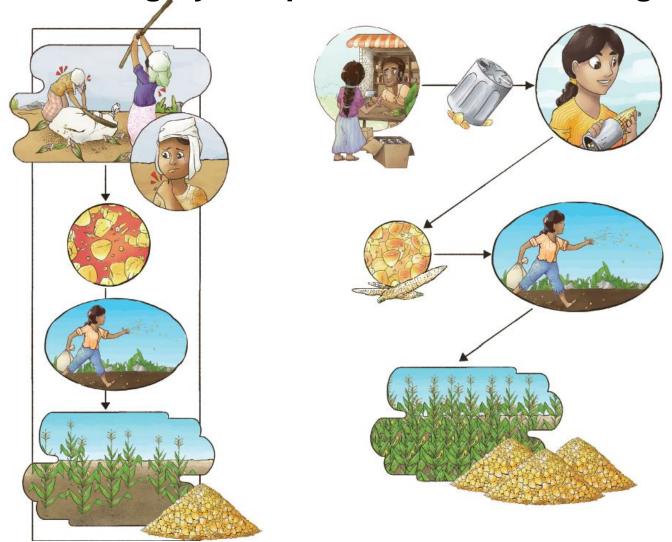
- Lesson <u>concepts identified</u> based on farmer surveys and local NGOs
- Canadian graphic designer visited rural project village in Nepal
- Drafting began of computer graphic lessons
- Pre-tested some lessons in Nepal
- Revised and <u>completed 100 picture</u> <u>lessons</u> + added text



## Utilizing the under-utilized vertical walls to grow crops: yams in sacs placed at the base of terrace walls reduces drudgery

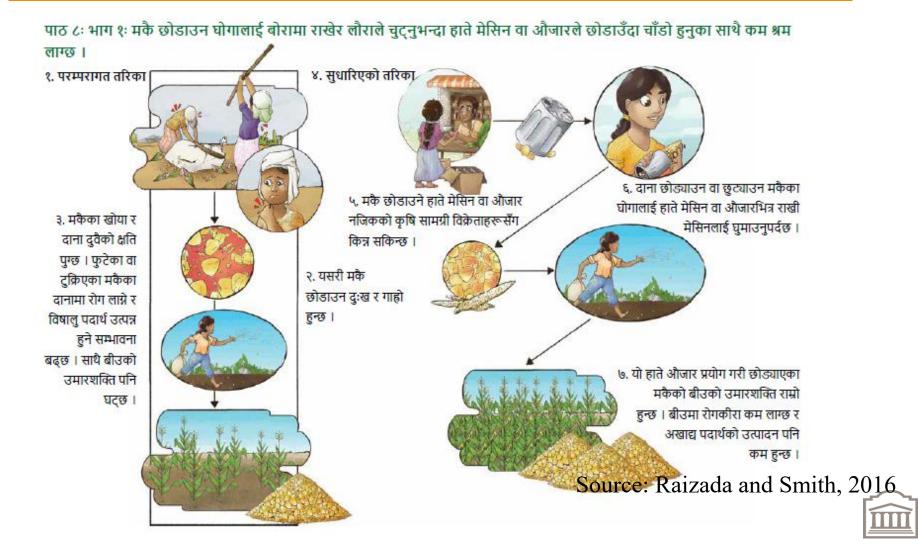


A handheld tool to reduce kernels of corn from the cob (corn sheller) reduces female drudgery and prevents kernel breakage



u Ottawa

## Example of picture lesson on hand held maize sheller (in Nepali language)



### Participatory picture lessons editing 2016: Phase 2

#### Methodology

- Tested with <u>56 female</u> farmers from different age groups (20-55 years) and ethnicity in <u>Majhthana, Kaski</u>.
- Farmers were shown the lessons without text captions.
- 100 picture lessons tested.
- 500 edits (age and gender related) completed as suggested by women farmers/editors.
- 41 related lessons added incorporating earlier farmer feedback
- 141 final lessons published internally in Nepali and English languages

20 lesson selected and published as a booklet for circulation.



Figure: Picture editing process among female farmers



### Key reflections from participatory editing process

- Participants always tried to recognize the type of plant and grain shown in the picture book.
- Recommended to make seed and plants more visible, so that participants can internalize them
- Recommended to show the cartoon character of picture lessons wearing Nepali/local dresses.
- Too many pictures in one lessons and in one page were confusing for the women farmers.
- For example: especially in the case of tools, many pictures were in one page with limited space in between. This created confusion for the readers, so suggested to separate those lessons into two or more pages with larger sized pictures.



### **Effectiveness of picture lessons**

- Picture lessons are exciting and helpful for the women farmers to understand the new practices and technologies.
- For young women
  - those who are literate were comfortable with the picture lessons and understand the lessons easily.
- Old women
  - faced difficulty to get the flow of the picture in lessons at first.
  - were asking for bigger sized pictures, as poor eyesight is one of the major challenges for them



### The major three reasons for liking the picture lessons among women and men farmers were:

- 1. The "attractive/artistic/beautiful words" along with the colorful pictures, consistent with previous studies (Simoncini et al. 2016);
- 2. The subject matter provided in the booklet as previously noted (Maunder 1972) such as small farm tools like the handheld corn sheller and fruit picker; and
- 3. The layout of the booklet.
- A study from Katzir et al. (2013) also found that font size and type "trigger encoding and retrieval processes that supports learning, comprehension and remembering".



### Field testing 2017-2018: Phase 3

**20 highest priority lessons to Nepali project site** farmers selected by local NGO staff and published as booklets

Picture booklets **distributed to** Nepali farmers, extension workers and scientists

Data collection with two groups of **Nepali women and men farmers (n=180)**:

- Control group: at 2 project sites (n=120 farmers)
- **Test group:** at nearby non-project sites (n=**60** farmers)

Data collection with <u>stakeholders</u> (25 Nepali extension workers and scientists)

Theory of planned behaviour used as an analytical tool.

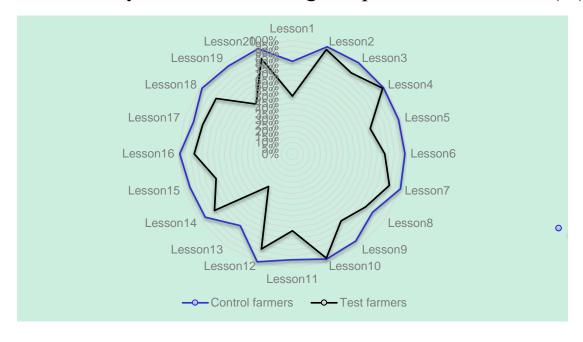






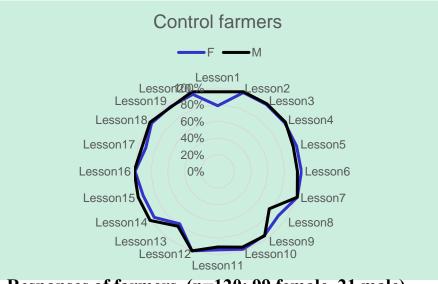
### Field testing 2017-2018: Phase 3

"Did you understand the given picture lesson?" Yes (%)

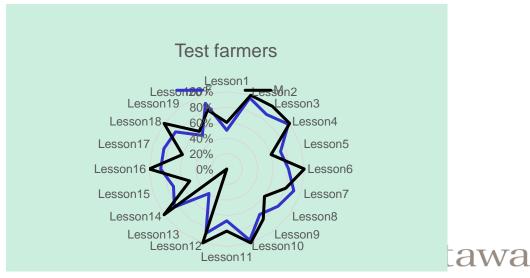


**Figure:** Overall responses of farmers (n=120 for control farmers; n=60 for test farmers)

... surprised by farmer understanding



Responses of farmers (n=120; 99 female, 21 male)



Responses of farmers (n= 60; 54 female; 6 male)

### Nominal association tests (Phi and Cramer's V)

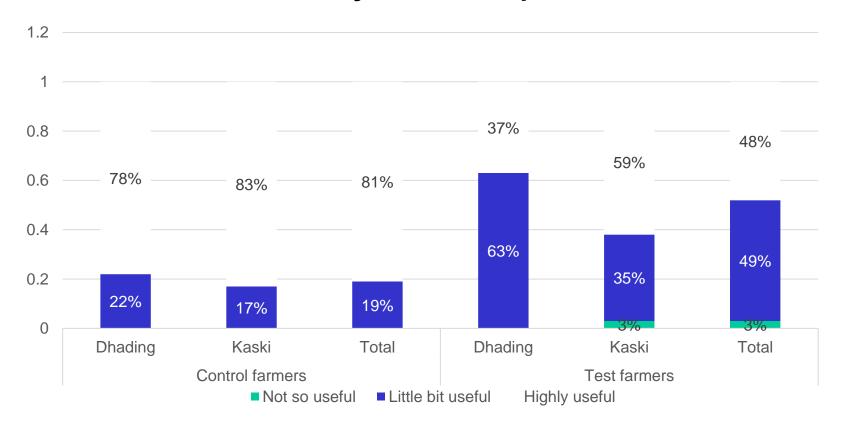
(between understanding of the lessons and the farmer's socio-demographic parameters)

Lesson 2	Phi	Cramer's V	Approximate Significance
	0.06		
Sex	2	0.062	0.404
	0.16		
Age	0	0.160	0.471
	0.07		
<b>Education</b>	7	0.077	0.785
	0.29		
Caste	7	0.297	0.015*
	0.05		
Group	5	0.055	0.463
Lesson 3	Phi	Cramer's V	Approximate Significance
Lesson 3	9.09	Cramer's V	Approximate Significance
Lesson 3 Sex		Cramer's V 0.095	Approximate Significance 0.203
	0.09		
	0.09 5		
Sex	0.09 5 0.18	0.095	0.203
Sex	0.09 5 0.18 4	0.095	0.203
Sex Age	0.09 5 0.18 4 0.15	0.095 0.184	0.203 0.306
Sex Age	0.09 5 0.18 4 0.15	0.095 0.184	0.203 0.306
Sex Age Education	0.09 5 0.18 4 0.15 7 0.23	0.095 0.184 0.157	0.203 0.306 0.220
Sex Age Education	0.09 5 0.18 4 0.15 7 0.23 4	0.095 0.184 0.157	0.203 0.306 0.220

Gender, age, caste, and education did not significantly affect (associate with) understanding of the majority of lessons.



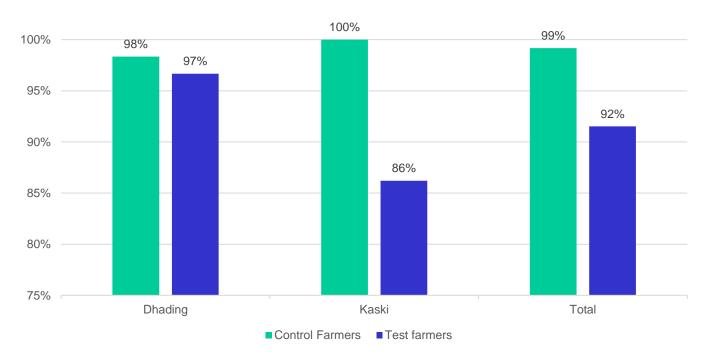
### **Attitude of farmers:** "How useful did you find the picture booklet?"



(n=120 for control farmers; n=60 for test farmers)



# Attitude of farmers: "Is this the right communication approach/extension method for low literacy women farmers in rural Nepal?"

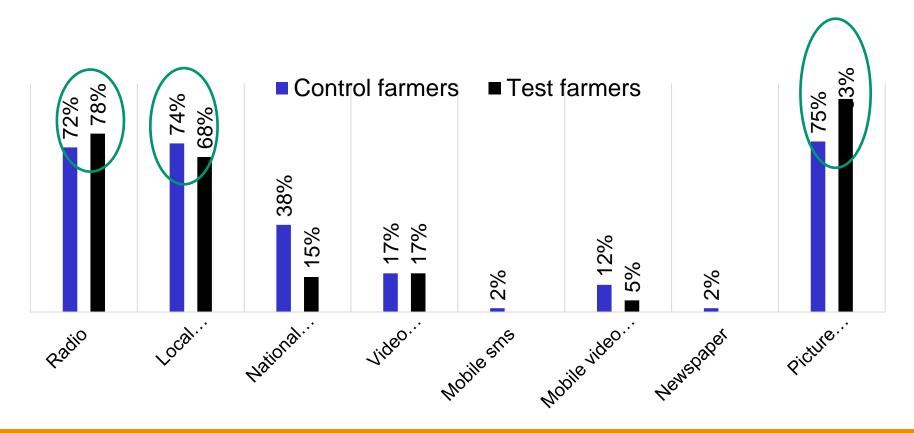


(n=120 for control farmers; n=59 for test farmers)

The evaluation was based on the printed picture-based booklet as a whole



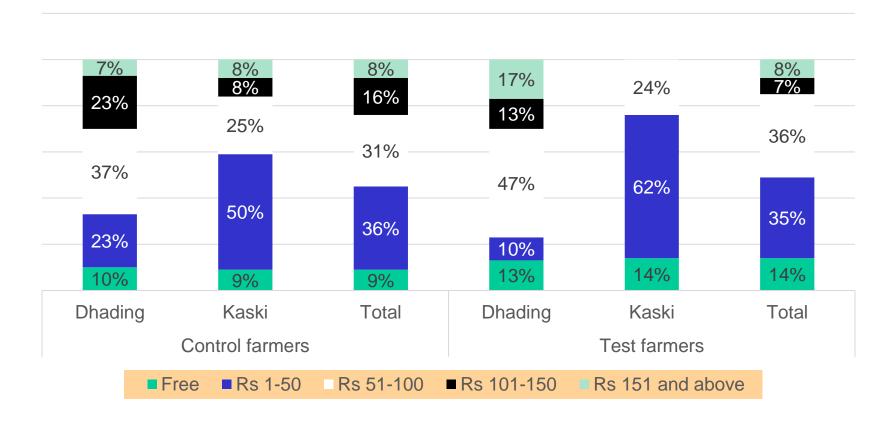
### Top 3 responses on "Which media do you prefer for agricultural communication?"



The data is based on a total of 343 selections from control farmers (n=120) and test farmers (n=59), combined.

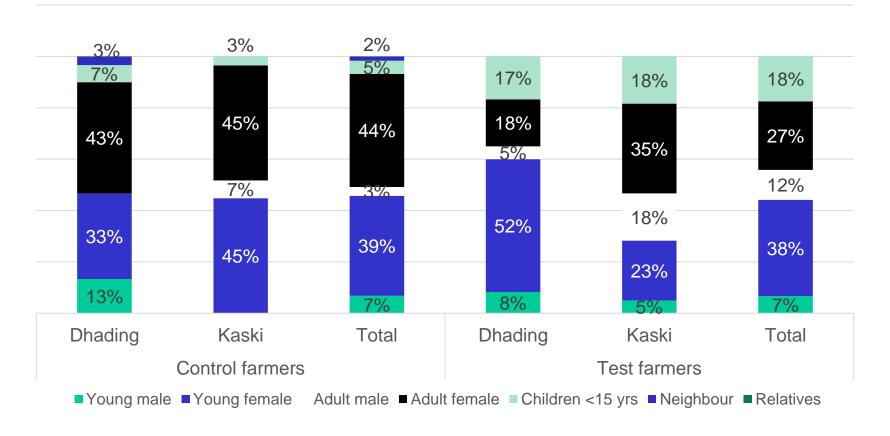


## Perceived behavior control: "How much would you pay for the SAK picture booklet?"



Data shown is in Nepalese Rupees (NPR) (1 USD= 118 NPR). (n=120 for control farmers; n=59 for test farmers)

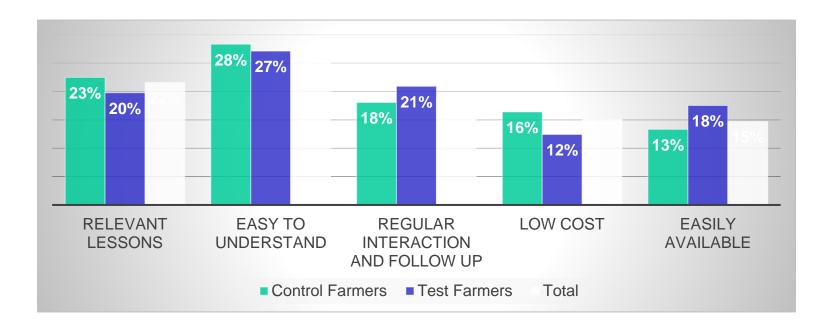
## Perceived behavior control: "Who read the SAK picture book the most in your home?"



(n=120 for control farmers; n=59 for test farmers)



# Perceived behavior control: "What would be the major three required facilitating conditions to use/apply these picture lessons in the future?"



The data is based on a total of 531 selections from control farmers (n=120) and test farmers (n=59), combined.

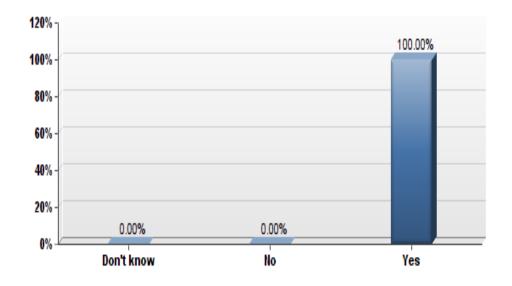


### Major facilitating conditions for farmers

- <u>The three major facilitating conditions</u> for farmers to use the picture lessons in the future were:
  - pictures should be <u>easy to understand</u> (28%);
  - lessons should be <u>directly relevant to their agricultural activities</u> (22%);
  - Farmers should have <u>regular interaction and follow up from the extension</u> <u>agents</u> or farmer leaders so that farmers felt obliged to use the lessons (19%).
- Other facilitating conditions:
  - low cost (15%);
  - easy availability of the picture lessons (15%)



### Stakeholders perspectives on picture lessons



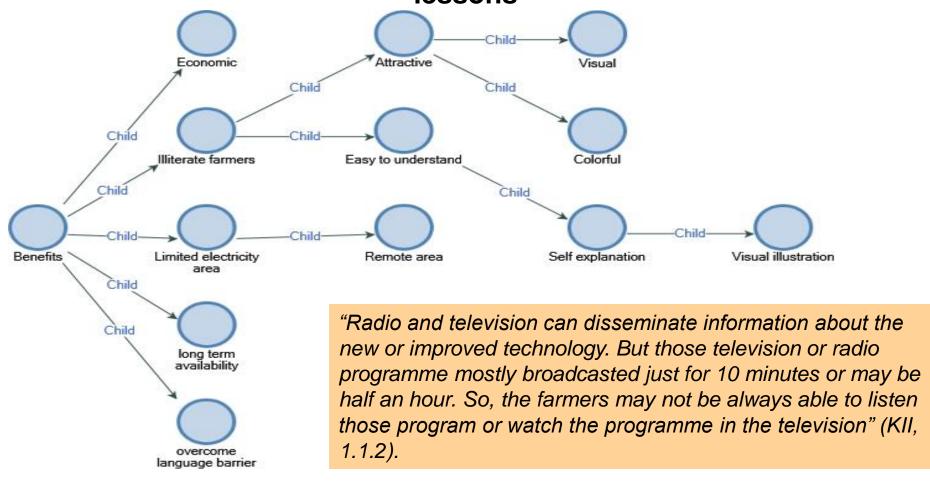
Question: "Do you think picture book is useful for illiterate farmers", generated through Qualtrics (Response from Scientist &extension workers)



Word cloud generated from Nvivo 11 from all data sources of the study

Study revealed that the picture strategy is an effective method to exchange information where target groups or farmers are illiterate

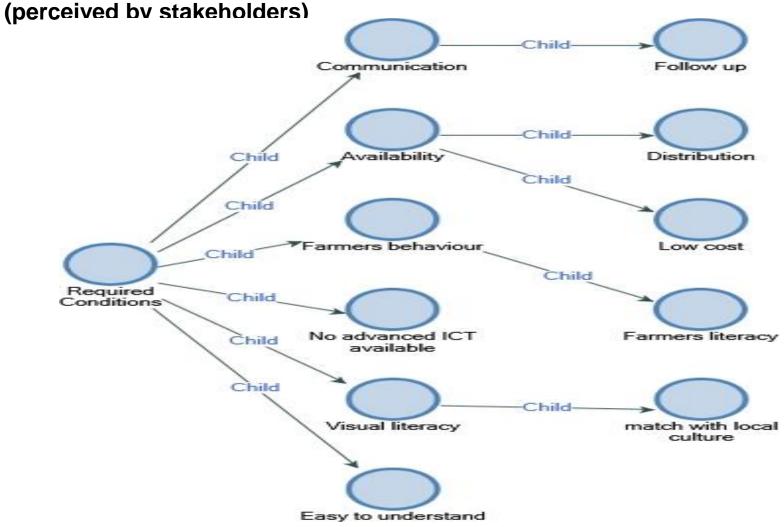
## Stakeholder's perceptions on potential benefits of SAK picture lessons



(n=12), extension workers (n=12) and the SAK graphic artist (1).



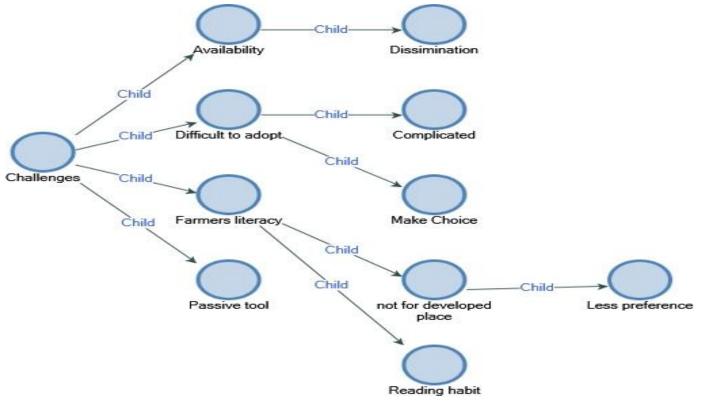
Required conditions for the SAK picture lessons to be relevant to rural Nepal



(n=12), extension workers (n=12) and the SAK graph artist (n=1)



## Stakeholders' perspectives on challenges associated with the use of picture methods in less developed countries



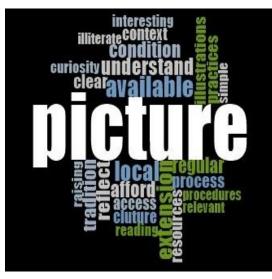


Figure: Word cloud, Nvivo 11.

Figure: Coding of challenges of using picture book in less developed countries, generated through Nvivo 11.

#### Conclusions

- High capital cost requirement combined with limited digital literacy in villages, make advanced means of communication inaccessible to resource-poor women and elderly farmers with low literacy.
- Printed picture lesson still holds value in rural Nepal if developed using a participatory approach at all stages of development.
- Children can be one of the most promising target groups for this kind of communication.
- Accessibility and availability of picture lessons in remote areas are some limitations



#### Recommendations

- The <u>pictures</u> should be <u>simple</u>, <u>easy to understand</u>, <u>low cost</u> and come with the <u>step-wise procedures</u> targeted to relevant topic/issues.
- Some <u>sustainable distribution mechanism</u> has to be created at the local level.
- Proper mechanism for the <u>regular interaction or follow up</u> with farmers about the different practices mentioned in the picture books should be established for the effective use of the extension materials.



#### For more details on this research

 Devkota, Rachana, Helen Hambly Odame, John Fitzsimons, Roshan Pudasaini, and Manish N. Raizada 2020. "Evaluating the Effectiveness of Picture-Based Agricultural Extension Lessons Developed Using Participatory Testing and Editing with Smallholder Women Farmers in Nepal" Sustainability 12, no. 22: 9699. <a href="https://doi.org/10.3390/su12229699">https://doi.org/10.3390/su12229699</a>



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- Anamolbiu staff (Nepal) including Puskar Rimal
- Dr. Kirit Patel and Dr. Hom Gartaula (Canadian Mennonite University)
- Private sector collaborators including Agriculex (Guelph)
- Post doctoral fellow: Dr. Malinda Thilakarathna
- Graduate students: Kamal Khadka, Finlay Small, Eamonn McGuinty
- Gryphon Therault-Loubier, SAKNepal website coordinator
- <u>Undergraduate research assistants:</u> Jaclyn Clark (now MSc), Austin Bruch, Sara Wyngaarden, Caleb Niemeyer, Nick Moroz
- Faculty advisors: Prof. Cate Dewey, Prof. Ralph Martin, Prof. Helen Hambly, Prof. John Fitsimons, Prof. Alastair Summerlee, Prof. Ali Navabi and other graduate committee members
- 400 UofG undergraduate students



- Individual picture lessons and the whole SAK book have been adapted to 5 regions around the world and will be available to download for free at <a href="https://www.SAKNepal.org">www.SAKNepal.org</a>
- For further information about the SAKNepal project or the picture book, contact Rachana Devkota (<u>rdevkota@uottawa.ca</u>) or Prof. Manish Raizada (<u>raizada@uoguelph.ca</u>)
- Thank you!





# Why Do Some Farmers Adopt New Technologies While Others Don't: Behavioural Insights from South Asia

ASEAN Action Plan on Fall Armyworm Workshop
23 November 2021

Maria Fay Rola-Rubzen





# **Background**





Poverty does not belong in civilized human society. its proper place is in a museum

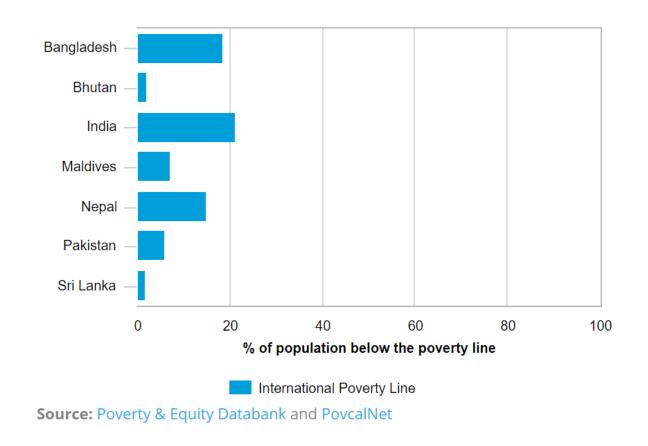
Muhammad Yunus

### Background cont.



# Yet, large pockets of poverty still exist....

- Many of the poor live in South Asia
- Most of the poor are located in rural areas and are smallholder farmers



## Background cont.



- Various farming innovations, such as improved conservation agriculture, water management and marketing systems to increase productivity and resilience to climate change, are being developed through agricultural research
- CASI technologies have been introduced in the EGP in the last 4 years
- Despite success of field experiments, CASI adoption has been low outside project sites
  - 3.37% of cultivated area under CASI (partial ZT) in the IGP of India
- Why?

#### **Adoption decision-making**

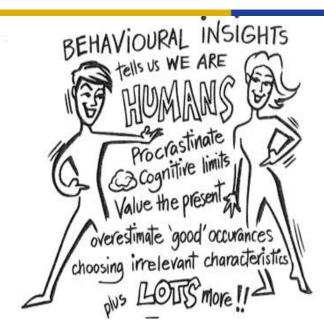


# Why do some famers adopt new technologies, whereas others don't?

Conventional approach assumes farmers are rational

#### **But** ...

- Humans do not always act rationally
- Humans are emotional and easily distracted beings, they make decisions that may not be in their self-interest
- Neo-classical economic theory alone cannot explain why farmers are not adopting even if interventions seem to be in their best interest



Source: BETA (2018)

Applied behavioural economics (BE) to understand farmer decision-making in the adoption of conservation agriculture-based sustainable intensification (CASI) technologies

#### What is behavioral economics?





Method of economic analysis that applies psychological insights into human behaviour to explain decisionmaking

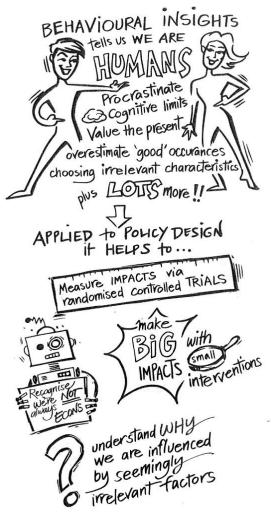


Source: BETA (2019)

#### Applying BE to nudge adoption



#### How?



#### Influencers of behaviour and change

Messenger	we are heavily influenced by who communicates information
Incentives	our responses to incentives are shaped by predictable mental shortcuts such as strongly avoiding losses
Norms	we are strongly influenced by what others do
Defaults	we 'go with the flow' of pre-set options
Salience	our attention is drawn to what is novel and seems relevant to us
Priming	our acts are often influenced by sub-conscious cues
Affect	our emotional associations can powerfully shape our actions
Commitments	we seek to be consistent with our public promises, and reciprocate acts
Ego	we act in ways that make us feel better about ourselves

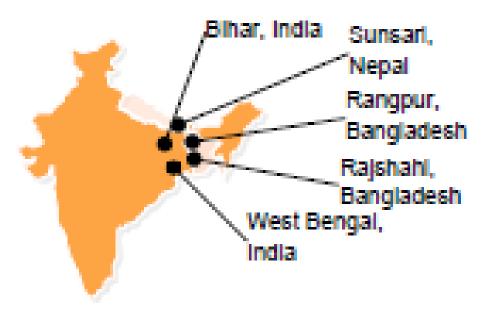
Source: Mindspace

Source: BETA (2018)

# Farmer Behaviour Insights Project (FBIP)



- Multidisciplinary team (economists, psychologist, sociologist, agronomist, CA specialist, statistician, econometrician)
- > 3 countries, 5 sites

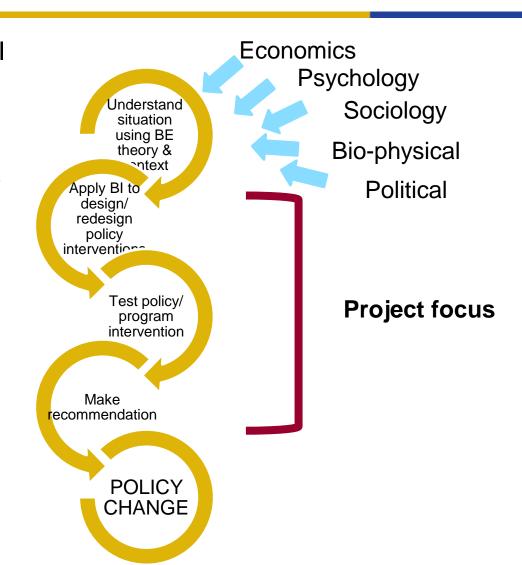


> Funded by: Australian Centre for International Agricultural Research

# **Objectives**



- 1. Determine whether BE can provide additional insights in the adoption decisions of farm-households in the EGP
- 2. Identify what specific behaviours and bottlenecks are leading to or constraining the adoption/non-adoption
- 3. Develop, test and evaluate program interventions on extension, input provision and service delivery that incorporate behavioural insights



#### Research approach and methods



- ➤ Mixed methods research (quantitative and qualitative)
  - □ Desktop research
    - Literature review
  - Qualitative
    - FGDs (30 FGDs; 339 participants (45% female)
    - Key informant interviews (366 KIIs; 343 farmers (42% female); 23 SPs
  - Quantitative
    - Behavioural experiments (Using RCT) 7 BE experiments
  - Impact evaluation
    - Surveys (Baseline & endline)
    - Case studies





# **RESULTS**



#### **Qualitative results**



RQ1: Can behavioural economics provide additional insights into small farmer adoption of CASI in the EGP?

#### > Yes

➤ While economic returns are important considerations to adoption, non-economic factors (psychological, social, cultural, religious, cognitive limitations, etc.) are also critical in farmers' decision to adopt or not adopt a new technology

#### Qualitative

- FGDs (30 FGDs; 339 participants (45% female)
- Key informant interviews (366 KIIs; 343 farmers (42% female); 23 SPs

#### Qualitative results cont.



# RQ2: What specific behaviours and bottlenecks are leading to or constraining the adoption/ non-adoption outcome of CASI technologies?

- Status quo bias (tendency to stick to their conventional practice) -
- Cognitive bias/limitations (deviation from rational decision) —
- Bounded rationality biases, heuristics, satisficing -
- Decision inertia (procrastination, busy) -
- Loss aversion (do not like the idea of losing) -
- Risk attitude (risk aversion) -
- Socio-cultural norms and beliefs -
- Altruistic behaviour (concern for others; environment) +
- Social influence (decision influenced by others) +/-
- Affect heuristic (emphasizing on current emotion of decision maker) +/-

#### **Quantitative: BE Experiment**



- India second most populous country (~ 1.2 billion people)
- 7th largest country in the world
- Fast economic growth, but ....
- About 2/3 of population live in poverty; 30% are extremely poor
- Climate change affecting agriculture
- Agricultural productivity is far below the highest ranked countries
- Population growing

West Bengal case study: Testing pre-commitment and micro-incentives



#### Case study: West Bengal



- To examine whether **pre-commitment** will **increase adoption** of CASI technology in West Bengal, India
  - Will pre-commitment be sufficient to nudge farmers to adopt?
  - Is pre-commitment + micro-incentives needed to encourage behavioural change?
  - > Pre-commitment strategy or method of self-control that an agent may use to restrict the number of choices available to him or her at a future time (self-imposed or public)
  - > Micro-incentives small rewards given out on a per-behaviour basis

# Randomised control treatment (RCT)

Stated and

Revealed

Type

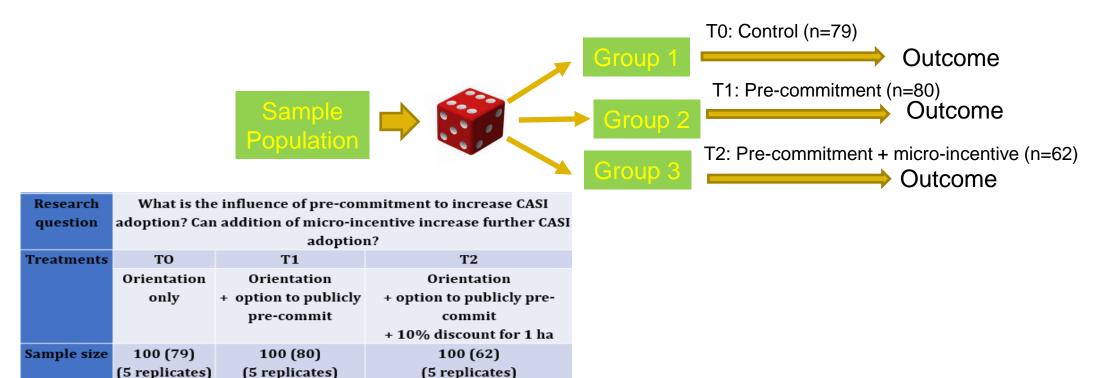
Stated and Revealed



Subjects were randomly assigned to one of three groups:

Stated and Revealed

- Comparison (or control) group no intervention
- Experimental (treatment) groups receiving the intervention that is being tested



#### **Tools**



আমরা শ্রী /	শ্রীমতি,সম্পাদক	/ সভাপতি / কোষাধক্য,		আমরা শ্রী / শ্রীমতি	. ~		পতি/কোষাধক্য,
(সার্ভিস প্রো	ভাইডারের নাম ও ঠিকানা) এবং শ্রী / শ্রীমতি		(কৃষকের নাম গু ঠিকানা)	~	(সাভিস	প্রোভাইডারের নাম ও ঠিকানা) এবং কেষকের	শ্রী / শ্রীমতি
অগামি ববি	মরসুমে বিনা / অপ্প কর্মণে কসল চাবের বিষয় আঞ	(ভাৱিৰ ৰা	র) এতদারা চুক্তিবদ্ধ হলাম যে,	বিষয় আজ	(তারিখ	বার) এতদারা চু <del>তি ক</del> হ	
চায - আমি করাব	হী / হীখতি আগতি লাগ কৰা কৰিছে আগতি বহি বৰসুৰে আনতা পিছা কৰিছে দিলা / জম্ম কৰিছে পিছা কিছে কৰিছে কৰিছ	নবসুমে পরিকর্মা সিতে  - আমানের উভয়ের সম্মৃতিক্রমে আগামি এই পরিষেবার সিন হিসাবে থার্যা হল।  - আমানের উভয়ের সম্মৃতিক্রমে নির্দিষ্ট পরিষ্ হল।	থেকে তারিখের মধ্যে	করা এবং এই হৈছে পরিষেবা পাওয়ার জ ক্লাষ্টার তৈরি করেছি (সার্থিস প্রোভাইভার) • আমি / আমরা আগাহি	া / জ্বন্দ কর্মণে দিয়ো টিলেল মেশিন / রাইস ট ন্য এক সঙ্গে কয়েকজন মিলে _ এবং এ বিষয় অণুযাদিক তথ্য	ক্য জনিব   ক্য জনিব  ক্য জ	হার্যাত (মার্কির প্রোক্তর্বাহরে নাম), হী / উল্লিখনৈত চাবিদ্যা অনুযায়ী স্বাদার্য বর্ধিন মন্ত্রুম স্বাদ্যান্য স্বাদ্যান্য করে নাম্যান্য বর্ধিন মন্ত্রুম আমানের উত্তর্গতে সম্মৃতিক্রমে আগমি বর্ধিন স্বাদ্যান্য বর্ধিন স্বাদ্যান্য বর্ধিন স্বাদ্যান্য করে এই পরিবাদ্যান্য করে সম্মৃতিক্রমে স্বাদ্যান্য করে এই করিবাহে স্বাদ্যান্য করে সম্মৃতিক্রমে স্বিষ্টির সন্ধিরেশন্ত্র দ্বাদ্য হন।
• আফা মধ্যে	দের উভারের সম্মতিক্রমে আগামি থেকে তারিখের এই পরিমেবার দিন হিসাবে থার্য্য হল। দের উভয়ের সম্মতিক্রমে নির্দিষ্ট পরিমেবার দর প্রতি বিখাতে ধার্য্য	<ul> <li>যদি  নাম), উল্লিখিত চুক্তি অনুযায়ী অ  উক্ত পরিষেধার জন্য ধার্মা মুল্যের থেকে</li> </ul>	ু সংয	<b>াশুণ কৃষি</b> কেন কি ভাবে		П	আমাদের পরিষেবা
হণ। - আনি ৫০% আর্থি পরত - আমি অবি আম্	বোৰনাৰে সম্ভত পৰিবাৰনৰ কৰা অনুনায়ী প্ৰাপা সৰ্বমেট চুলোৱ নুসকল (আমি বুকিং দি সহা, পৰিচাৰণ প্ৰদানৰ দিনাই পৰিবাৰণ কৰাৰ এবং দাইলো সৰ্বাধিক মানেৰ মানেৰ মানেৰ মানেৰ মান কৰে।  উল্লিখিত চুক্তি অনুনামী অপুনি তবি মানুহাম সাহিলীপ শ্ৰেমাৰ কৰিব কৰিব নামাৰ্থিক লোক কৰিব মানিক শ্ৰেমাৰ কৰাক কৰিব নামাৰ্থক কৰাক কৰাক কৰাক কৰাক কৰাক কৰাক কৰাক কৰ	নাথা থাকৰ।  • আমদের উভয়ের সম্বতিক্রমে প্রাণা সর্বচ্চ ক্রমা থাকরে যা পরিষেধা প্রদানের দিন প্রচ	আংগর ফসলের অবশি     ফসল চক্রে বৈচিত্র্য আ   বি  বি  বি  বি  বি  বি  বি  বি  বি	পাদাম / অংশ কর্মণে ফসল লাগানো টাংশ (নাডা) বেশি করে রাখা			জিরো ডিশেজে সরমে জিরো ডিশেজে প্রম জিরো ডিশেজে খুটা জিরো ডিশেজে পাট ক্রম্পপ্রান্টারে ধান রোরা ট্রাম্পপ্রান্টার উপযোগী বীজতলা তৈরি (সারটিফাইড বীজ)
	কৃষকের হস্তাক্ষর	সা	কেন করবেন ? চাথের খরচ কমে	জমির স্বাস্থ্য ভালো থাকে	AIN	ll l	ট্রান্সপ্লান্টার উপযোগী বীজতদা তৈরি (বোরো)
			<ul> <li>মেশিনের সাহায়ের ক্ষসল বোকাটা ও ঝাড়াই হয়ে, লেবার</li> </ul>		রনের ক্ষমতা বাড়ে। রাধার কারণে, তার	ll l	মেশিনের সাহায্যে ফসল কাটা
			লাগে।  • এই পদ্ধতিতে জল কম লাগে	জৈব পদাৰ্থ বয়	লে। ভে। র সংখ্যা বৃদ্ধি পায়।	ll l	মেশিনের সাহায্যে ফসল ঝাড়াই কৃষি পরামর্শ
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#### **Pre-commitment** contract

600

600

900

500

800

600

500



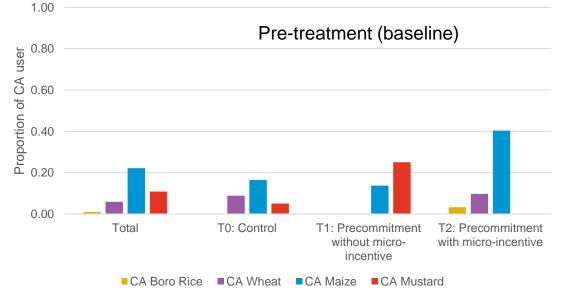


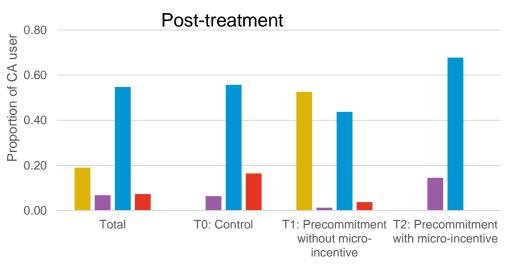
# Preliminary Results & Discussion

### **CA** farmers by crop



Variable	Total		T0:		T1:		T2:	
			Contro		Pre-comm without micro		Pre-commitm micro-ince	-
	N	%	N	%	N	%	N	%
Pre-treatment (baseline)								
CA Boro Rice	2.00	0.90	0.00	0.00	0.00	0.00	2.00	3.23
CA Wheat	13.00	5.88	7.00	8.86	0.00	0.00	6.00	9.68
CA Maize	49.00	22.17	13.00	16.46	11.00	13.75	25.00	40.32
CA Mustard	24.00	10.86	4.00	5.06	20.00	25.00	0.00	0.00
Post-treatment								
CA Boro Rice	42.00	19.00	0.00	0.00	42.00	52.50	0.00	0.00
CA Wheat	15.00	6.79	5.00	6.33	1.00	1.25	9.00	14.52
CA Maize	121.00	54.75	44.00	55.70	35.00	43.75	42.00	67.74
CA Mustard	16.00	7.24	13.00	16.46	3.00	3.75	0.00	0.00



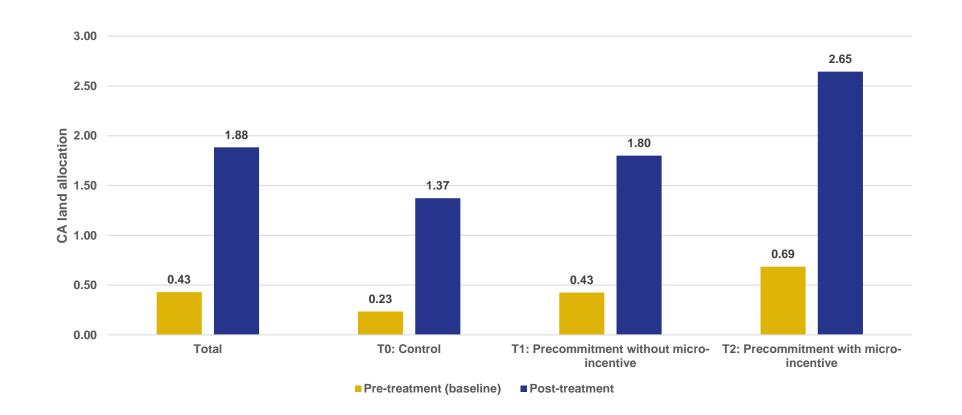


■ CA Boro Rice ■ CA Wheat ■ CA Maize ■ CA Mustard

### **CA land adoption**



CA land	Total		T0: Control		T1: Pre-commitment without micro-incentive		T2: Pre-commitment with micro-incentive	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Pre-treatment (baseline)	0.43	1.31	0.23	0.71	0.43	1.44	0.69	1.65
Post-treatment	1.88	2.15	1.37	2.44	1.80	1.69	2.65	2.09



#### **Difference-in-Difference models**



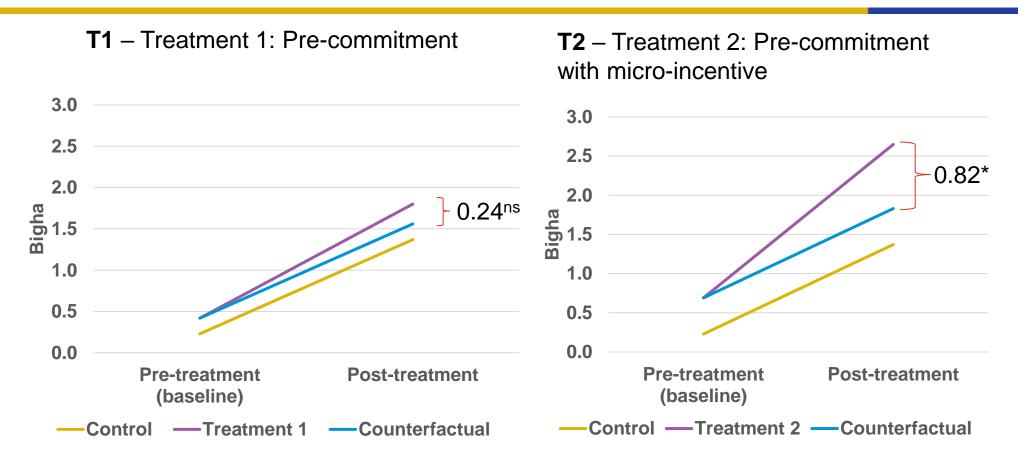
CA land	Coef.	Std. Err.	t	P>t	
Model 1					
Period	1.14	0.27	4.25	0.00	***
Treatment1	0.19	0.27	0.71	0.48	
Period*Treatment1	0.24	0.38	0.62	0.53	
Constant	0.23	0.19	1.23	0.22	
Model 2					
Period	1.14	0.29	3.90	0.00	***
Treatment2	0.45	0.31	1.45	0.15	
Period*Treatment2	0.82	0.44	1.86	0.06	*
Constant	0.23	0.21	1.13	0.26	

Model 1: N=318; F(3,314) = 15.77; p-value = 0.00; R-squared = 0.13; Adj. R-squared = 0.12; Root MSE = 1.69 Model 2: N=282; F(3,278) = 21.99; p-value = 0.00; R-squared = 0.19; Adj. R-squared = 0.18; Root MSE = 1.83

<sup>\*\*\*</sup>significant at 1%; \*\*significant at 5%; \*significant at 10%

#### Impact of treatments





• Precommitment with micro-incentive (T2) **significantly increased** (at 10% margin of error) the conservation agriculture land allocation of farmers by 0.82 bigha (0.13 ha).

<sup>\*</sup>significant at 10%; nsnot significant

#### Stated vs. revealed



Variable	Obs	Mean	Std. Err.	Std. Dev.	p-value
Control					0.44
Stated	79	1.23	0.16	1.45	
Revealed	79	1.37	0.27	2.44	
Treatment 1					0.00 ***
Stated	80	2.27	0.25	2.23	
Revealed	80	1.80	0.19	1.69	
Treatment 2					0.37
Stated	62	2.46	0.21	1.69	
Revealed	62	2.65	0.27	2.09	

• The revealed CA land allocation of farmers for pre-commitment without micro-incentive (T1) was **significantly lower** by 0.47 bigha (0.08 ha) compared to stated land allocated for CA.

<sup>\*\*\*</sup>significant at 1%; \*\*significant at 5%; \*significant at 10%

#### Stated vs. revealed



	T0: Control	T1: Pre- commitment without micro- incentive	T2: Pre-commitment with micro-incentive
CA Service Opted (hh) – Stated (verbal)	47.65%	72.78%	87.33%
CA Service with Pre- commitment (hh) – Signed & adopted	-	62.13%	68.67% in 14 clusters
Crop	Wheat, Maize, Mustard	Maize, Wheat, Mustard, Boro rice	Maize, Wheat

#### **Discussion**



- Between the two treatments, pre-commitment with micro-incentive (T2) significantly increased CA land allocation of farmers.
- Comparing stated versus revealed preference, pre-commitment without microincentive (T1) had significantly lower revealed CA land allocation compared with stated land allocation.
- Pre-commitment may increase the stated land area of farmers allocated for CA; however, without micro-incentive, it will not likely result to higher adoption (land allocated to CA).
- Thus, **micro-incentive** is an important feature in pre-commitment nudges to increase CA adoption,
- But clustering effect may have a role (social dynamics)

#### Conclusion





- Using a small experiment during the Rabi season in West Bengal, India, we found that:
  - Pre-commitment alone may not significantly increase CASI adoption
  - Pre-commitment without micro-incentive will only impact the stated preference of farmers to adopt CA but not the revealed preference
  - Providing micro-incentive to farmers can be an effective nudge to pre-commit farmers to adopt CA





#### **Future work**





- Analysis will be extended to yield, revenue and net income performance of CASI versus non-CASI across treatments.
- Qualitative analysis of adoption decision-making for deeper insights (e.g., role of clustering effect – social relationships)
- Other small field experiments are being conducted in other sites:
  - Overcoming cognitive limitation using field visit, protocol and video training in Rangpur, Bangladesh;
  - Framing video messages using herd behaviour and gender lens in Rajshahi, Bangladesh;
  - Using competition and text messaging reminders in Morang, Nepal; and
  - Using social proof videos and phone call reminders in Bihar, India.
- A large experiment (N=1,500) testing for **text messaging reminders** to adopt CASI is currently being implemented across five research sites in South Asia.

#### **Final remarks**





- Adoption is a complex process
- Behavioural economics (science) seems promising in improving adoption, hence, potentially can be a tool for increasing income and reducing poverty
- Nudging can be powerful, but there are ethical issues (Do no harm principle)
- Finally, we need deeper understanding if we are to apply it to improve adoption and make poverty history, and hence, meet Muhammad Yunus' vision of confining poverty to a museum.



#### Acknowledgement



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- RDRS Bangladesh (RDRS)
- University of New England (UNE)
- University of Western Australia (UWA)

















# Thank you















For further questions, please contact: Email: fay.rola-rubzen@uwa.edu.au



How can we catalyze the widespread adoption of farmer best management practices?

The case of 1M5R in Vietnam

**RICA JOY FLOR** 



## This presentation

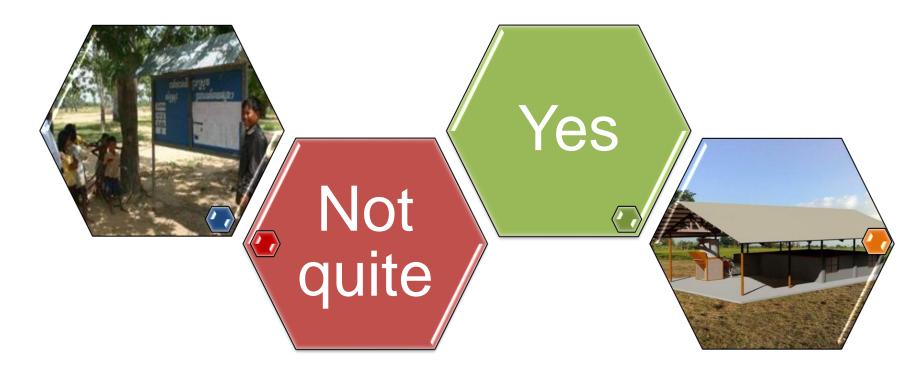
- Background on best management practices packaged as "1 Must Do, 5 Reductions" (1M5R)
- Policies and government programs
- Private sector initiatives
- How the alignment of sociotechnical systems supported the spread of 1M5R





## Assumption

Policy uptake of technology = Widespread adoption







## Best management practices for rice: "1 Must Do, 5 Reductions"

Criteria	Requirements	
Seed Quality	Certified seed	
Seed Rate*	≤120 kg ha <sup>-1</sup>	
Nitrogen*	≤100 kg ha <sup>-1</sup>	Applied with at least 3 splits
Insecticides*	Maximum 1 product application	No application within 40 days after sowing
Fungicides*	Maximum 2 product applications	No application after the flowering crop stage, except for the pre- harvest interval mentioned in label
Water Management	Alternate Wetting and Drying (AWD)	At least one mid-season draining following safe AWD practice
Harvesting	Using combine harvester	Harvest, when 80–85% of the grains per panicle are straw or yellow-colored

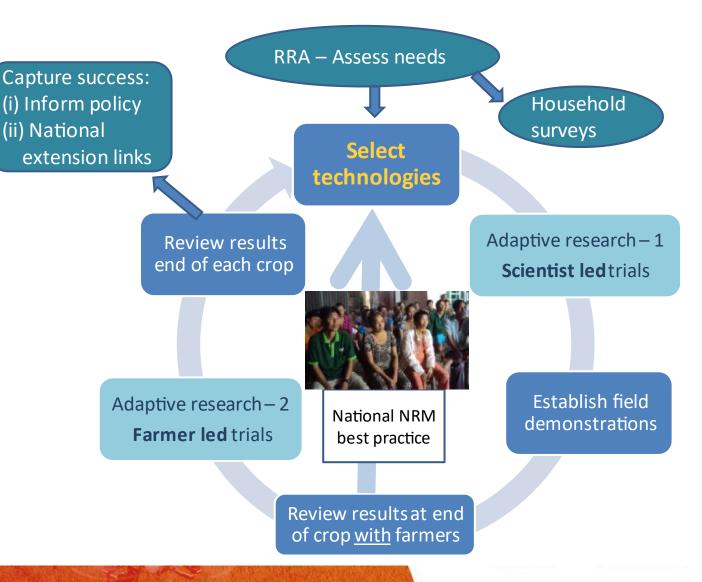




### "1 Must Do, 5 Reductions"

Built on "3 Reductions 3 Gains" (reduce seed rate, fertilizer and pesticides)

Adaptive research with farmers, then taken up in national initiatives



Province	Sustainable Practice + Contract Farming (ha)	Adopting 3R3G (ha)	Adopting 1M5R (ha)
An Giang	3842	20,969	19,851
Can Tho	12959	26,997	17,263
Dong Thap	4432	24,232	11,541
Hau Giang	8800	18,677	13,586
Kien Giang	10,231	24,394	11,165
Long An	6848	22,220	18,653
Soc Trang	7894	20,106	13,712
Tien Giang	8389	17,847	8099
Total	63,395	175,442	113,870

#### Adoption of 1 Must Do, 5 Reductions

#### Cross-sectional survey (n = 465)

#### 1 Must do

Use certified seeds (n = 421, 90.5%) with high-yielding varieties (n = 131, 28.2%)

#### 5 Reductions

Reduced seed rate (n = 399, 85.8%)

Reduced pesticides (n = 346, 74.4%)

Reduced fertilizers (n = 343, 73.8%)

Used AWD (n = 161, 34.6%) with low water use (n = 211, 45.5%)

Reduced post-harvest losses (n = 463, 99.6%) with combine-harvesters (n = 463, 99.6%)





Communication strategy and high-profile roll out





### **Enabling policies**

Government infrastructure

Small farmers, Large Fields

Good Agricultural Practice (GAP) Certification

Vietnam Sustainable Agricultural Transformation Project

Extension and training

Monitoring implementation

Coordination of farmer groups

Incentive mechanisms

Linking/monitoring groups/stakeholders





# Private sector engagement

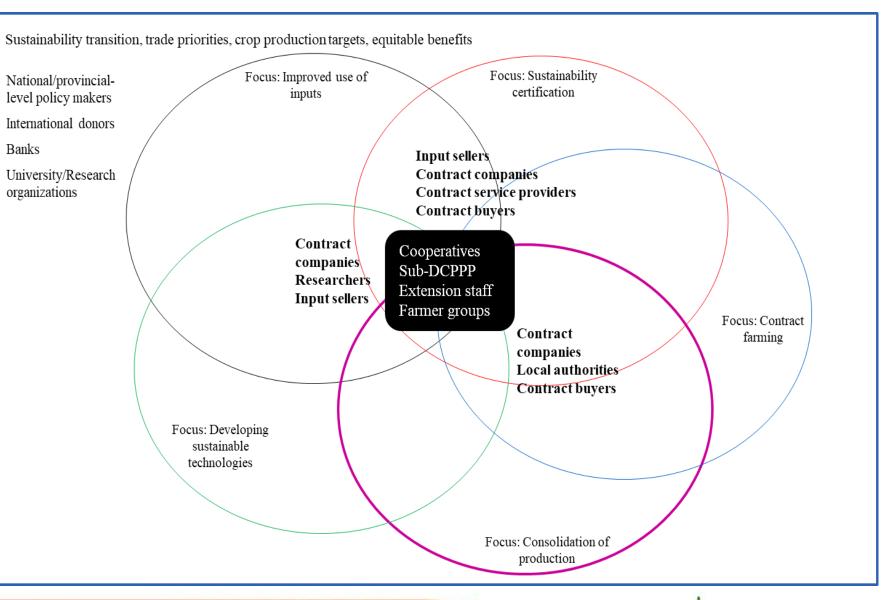


- Traders and exporters
- Input companies (fertilizer)





Overlaps in sociotechnical systems







#### Conclusion

- The alignment of socio-technical systems helped spread "1M5R"
- Even with policy uptake, scaling is not a simple linear process
  - Not only pushed by a top-down implementation of policies
  - Aligned initiatives from the public and private sector create enabling conditions for adoption
    - Caveat on existing diverging interests
- Incentive mechanisms for different stakeholders are crucial

More details at: <a href="https://doi.org/10.3390/agronomy11091707">https://doi.org/10.3390/agronomy11091707</a>





#### Summary

Important to listen to farmers – and understand their reality. Farmer do not always lack information, but trustworthy support. Social relations are vitally important

Understanding the range of incentives and nudges is critical for effective implementation but highly contextual — incentives are different for different people and communities - do your homework in the field.

**Adoption is a complex process** – it is also sometime non-linear.

Take time to **develop resources that work for those that are using them** – find out what works for them in their day-to-day living and working environment. Consider a range of communications styles.

Need to bring stakeholders together and look to align key alignment of socio-technical systems – Underscores the need for a **FOOD SYSTEMS APPROACH.** 



## ASEAN Action Plan on FAW Farmer Communication Workshop Series

A four-part series to catalyse action on the development and design of more effective farmer communications on IPM and FAW control.

**Session 1: Behaviour** 

Completed

**Session 2: Case studies of Farmer Communication** 

Completed

Session 3: The Behaviour of Pesticide Purchasing and Use

Part A - Completed

Part B - Completed

Session 4: Guidance for Communication – Top Tips for Effective Farmer Outreach

Completed

https://www.aseanfawaction.org/forum/farmer-communication

Case-Studies: We want your case-studies and examples – contact us at faw@growasia.org



#### **EFFECTIVE FARMER COMMUNICATION:**

A critical component of achieving IPM

23 November 2021 **CLOSE** 

#### Part 4: Pesticide Behaviour, Decision-making & Communication











