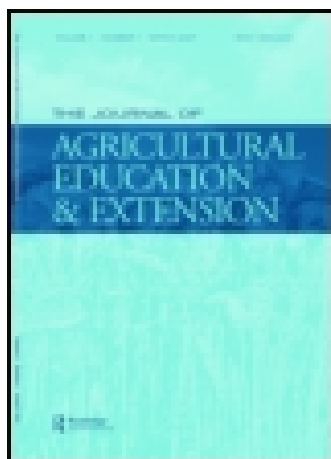


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# Distributing and Showing Farmer Learning Videos in Bangladesh

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**ABSTRACT Purpose:** *To describe the results of showing farmer learning videos through different types of volunteers.*

**Design/Methodology/Approach:** *Semi-structured interviews with volunteers from different occupational groups in Bangladesh, and a phone survey with 227 respondents.*

**Findings:** *Each occupational group acted differently. Shop keepers, tillage service providers, agricultural input and machine dealers reached fairly small audiences. Tea stall owners had large, male audiences. Non-governmental organisations and community-based organisations, reached more women. The cable TV (dish-line) operators showed the videos on local TV, but some were reluctant to do so again. The Union Information Service Centres showed the videos and reached women viewers. Half of the official government extension agents surveyed also showed the videos publically.*

**Practical Implication:** *This video featured maize, wheat and rice seeding machinery. Because the machinery is complex and requires hands-on training, this first video aimed to expose tillage and sowing service providers and farmers to the machinery, without trying to teach them how to use it. But some farmers were so interested that they watched the video many times to learn more about the equipment. Before farmers and service providers decide to buy machinery for direct seeding, they still want to see and learn from demonstration plantings, to examine first-hand how the crop behaves when planted with the new equipment.*

**Originality/Value:** *Video can be an effective way of sharing high-quality information with a large audience, if properly distributed.*

**KEY WORDS:** Bangladesh, Conservation agriculture, Farmer learning videos, Agricultural machinery, Innovation, Service provider, DVDs.

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## 1. Introduction

There are not enough extension agents in the world to visit all of the farmers who would like to receive their services. As an extension method, Farmer Field Schools (FFS) are science-based, rely on hands-on discovery learning, and can therefore benefit farmers who attend (Davis et al. 2011). However, there is currently little evidence that FFS graduates share their knowledge with other farmers who were unable to participate in field school sessions (Waddington et al. 2014). Because FFSs yield an in-depth, high-quality learning experience, they typically have an upper limit of about 25 farmers per school season, which can be a barrier to scaling up extension messages (Tripp, Wijeratne, and Piyadasa 2005). And where trainers are inadequately prepared, or facilitation is poor, the discovery-learning approach emphasised in FFSs can become eroded so that facilitators give lectures instead of enabling hands-on experimental learning, resulting in top-down information sharing (Sherwood, Schut, and Leeuwis 2012). Personal training methods—including FFSs and other group formats—can sometimes be captured by village elites, and exclude disadvantaged households (Zossou et al. 2009a; Kamanga 2011). While FFSs and other methods with live extension agents can convey complicated extension information, faster methods may be needed to reach larger farmer audiences.

Media, such as video, radio and TV can reach large audiences, either combined with in-person instruction by extension agents or alone. Exposure to media can potentially encourage farmers to experiment with the innovations depicted in TV, radio and video, on their own terms, especially if the video is of high quality, and where villagers who have experience with an innovation demonstrate it and explain it on camera (Chowdhury, Odamé, and Hauser 2010; Coldevin 2003; Heong et al. 2014; Rajula Shanthly and Thiagarajan 2011; Van Mele et al. 2007; Zossou et al. 2009b). According to Rogers (1983), mass media is more important at the knowledge stage of an innovation decision process, while interpersonal channels (personal, face-to-face contacts) are more important at the persuasion stage. However, as video quality improves, they may become more convincing.

From 1975 to 1986, the Food and Agriculture Organization (FAO) supported a farmer-training project in Peru with video, printed materials, and facilitated discussions backed by field technicians. Content was generated from a blend of local and scientific information. The project made about 1,000 video programmes (averaging 20 minutes in length) and showed them to more than 153,309 smallholders at a cost of \$30 per farmer per course (Coldevin 2003). An additional 200 people were trained to make more videos. As with the FFS (later supported by FAO), each of the videos was part of a season-long course of about ten videos, and in each session an extensionist facilitated discussion and practical exercises (Fraser 1987). Videos continued to be made until 1993 on topics including crops and livestock (Máximo Quiroz, personal communication, 31 July 2014). The United Nations Development Programme later adapted this approach in Mali. A follow-up project (1993–1996) in Bolivia, Brazil, Nicaragua and Chile trained over 25,400 farmers at a cost one-third to one-fifth that of conventional extension (Coldevin 2003).

As videos for sharing ideas with farmers are now becoming increasingly common and the agricultural R&D community gains more experience with videos, it is crucial to ask about distribution, to reach more farmers indirectly, for example, through those individuals and organisations which are self-motivated to show videos without any support from a project. Benefits per dollar spent could be high if distributors could find those actors who would screen a \$1 DVD to 300 people. As Benouniche, Errahj, and Kuper (2014) observed,

other rural actors besides farmers can play an important role in agricultural innovation. It is crucial to identify these agents who will extend messages without project aid, as no R& D project can reach all of the farmers in a country through direct means.

The Digital Green approach, in which farmers informally film and share their own videos, is participatory, but each video typically reaches small audiences (typically 100 people or less). Participatory videos may be made for 540 households in eight villages (Gandhi et al. 2009). This approach is not unlike the earlier FAO experience in Peru, where the videos are used as an aid by extensionists, in village meetings with small audiences. Scriptless videos, like the ones produced by Digital Green, do give farmers a larger role in the filming, and are more spontaneous and subjective, so they may be appropriate only for the specific place where they were filmed and not necessarily be replicable or relevant elsewhere (Chowdhury, Odame, and Hauser 2010). Videos can enhance the work of extensionists who film the videos and show them to small audiences (Gandhi et al. 2009). But the question still remains, how can videos be used to reach increasingly larger audiences?

Extension workers cannot be expected to simply start using videos and other information communication technologies (ICTs) on their own. In the Caribbean, a survey of 119 extension officers showed that most extension agents used ICTs in their personal lives, but still used traditional visits and direct interaction to reach farmers (Strong et al. 2014). Extension agents may need guidance on how to use ICTs for effective extension.

ICTs may be a promising option to reach large audiences if they are properly distributed and farmers can access them. In a comparison of computer multimedia and traditional extension to train sugarcane growers in rice ratoon management in Tamil Nadu, India, farmers who heard lectures and saw multimedia learned more (and adopted more practices) than those who only listened to lectures, or only saw multimedia. While differences in knowledge gained between these groups were significant, they were also small (ranging from 18.63% to 29.10%), suggesting that multimedia can in and of itself compete with lecturing extension agents, at least for introducing simple information and concepts (Rajula Shanthi and Thiagarajan 2011).

In Bangladesh, women who watched videos on rice seed health experimented with new seed preservation technologies which resulted in a 15% increase in rice yields, with no changes in control villages (Chowdhury, Van Mele, and Hauser 2011). A study of television dramas with agricultural messages in Vietnam showed that viewers were more likely than others to adopt agroecological practices, such as keeping flowers on rice bunds to encourage beneficial insects, and reducing seed rate, pesticide use and unnecessary nitrogen fertiliser application (Heong et al. 2014). Video can also reach large numbers of people, including women, youth and minorities. Rural women in Bangladesh are often discouraged from leaving their homes or village, or making trips to the market (Hartmann and Boyce 1983). Public talks and demonstrations may therefore reach more men than women, even if held in rural markets and small towns (Nash and Van Mele 2005). Conversely, if videos are publically screened in villages, they are more likely to reach women.

While farmer learning videos can (and are) broadcast on TV, if DVDs are left with communities, viewers can watch the programmes as many times as they choose, and show them to others. In Uganda, farmers learned cultural practices such as field levelling, rice transplanting and ways to improve soil fertility from videos that were left in their communities and watched repetitively (Bentley, Van Mele, and Harun-ar-Rashid 2013).

Leaving DVDs with development agencies allows extension workers to become advocates for the messages shared on the videos, and take the initiative to show them to wider audiences (Van Mele et al. 2010). In Benin, non-governmental organisations (NGOs) that showed videos on rice parboiling reached more women than NGOs that offered conventional 2-day workshops, with more women attending the screenings beyond those invited by village elites. Women who watched the videos were also more likely to experiment with new parboiling techniques and to form groups to parboil rice (Zossou et al. 2009a).

In 2005, Van Mele and colleagues in Bangladesh organised over 1,400 video shows on rice seed health, reaching about 131,000 smallholder farmers. After each screening, women in the audience were asked to select a person to receive a video compact disc (VCD). Within a short time, these community members organised about 140 more shows at their own initiative. Each copy of the VCD that was distributed reached about 200 farmers, triggering changes in their knowledge and practices at little additional expense or effort for project staff (Van Mele et al. 2007). This suggests that distribution of videos through villages can be valuable. But in this example, the villagers were already organised into producer groups formed by extension agents. If one wanted to reach all of the villages in a large country, it would be important to identify the kinds of actors who would most likely take the initiative to screen videos for others.

The purpose of this paper is to report on the effect of distributing DVDs to non-project actors in Bangladesh, for example, tea stall owners, extension officials and agricultural machinery dealers, who could potentially show videos to wider audiences on their own initiative. The video 'Save More, Grow More, Earn More' (available at: [www.accessagriculture.org/node/949/en](http://www.accessagriculture.org/node/949/en) and hereafter referred to as 'Save More') was produced in 2012 and focuses on scale-appropriate agricultural machinery that could be used for conservation agriculture (CA) and resource conserving crop management practices such as strip tillage, direct seeding and bed planting of rice, wheat and maize. The video was designed to raise awareness of these practices, but not to deliver detailed training messages on how to implement them. Rather the video was intended to create demand among farmers, tillage service providers, and machinery manufacturers and distributors for the equipment (Bentley, Van Mele, and Harun-ar-Rashid 2013).

'Save More' described farmers' experiences with equipment that is commonly referred to as a power-tiller operated seeder (PTOS) that can be attached to any of the over 500,000 two-wheeled power tiller tractors now common in Bangladesh (Krupnik et al. 2013). The PTOS allows farmers to practice direct sowing, with the machine automatically sowing seed and banding fertiliser in rows. When half of the tillage blades are removed from a PTOS, the same implement can be used for 'strip tillage', a CA practice where only narrow slots of soil are tilled into which seed and fertiliser are placed, thereby reducing fuel consumption and allowing crop residue to remain on the soil surface as mulch (Krupnik et al. 2013). PTOS machines are imported from China, though two-wheel tractor attachable bed planters were developed by the Bangladesh Agricultural Research Institute (Roy, Meisner, and Haque 2004).

The video was produced with much involvement from farmers, who demonstrated the innovations on the video. Rural women and men spoke on camera, describing their impressions of the machinery and their uses. After production, the video was pressed on DVDs, which also included four other videos on rice seed health, which had been made in 2003 with the International Rice Research Institute (IRRI) in Bangladesh. The DVDs

were distributed in rural villages and small towns. Villagers have access to television (both cable and broadcast), either at home or in tea stalls. Cell phones are popular, but Internet is not widely available.

This paper presents case studies of a sub-sample of ten types of actors (e.g. machinery and agricultural input dealers, tea stall owners, village shops, extension agents and civil society organisations) that accepted one of the 1,149 'Save More' DVDs which were distributed following public video screenings throughout administrative sub-districts (*upazillas*) across southern Bangladesh. Our purpose and research questions focussed on determining which type of actor most frequently showed the DVDs to reach the largest audiences, as well as to determine which ones reached women as well as men, and to suggest how video distribution can be used as a way to scale-up extension information.

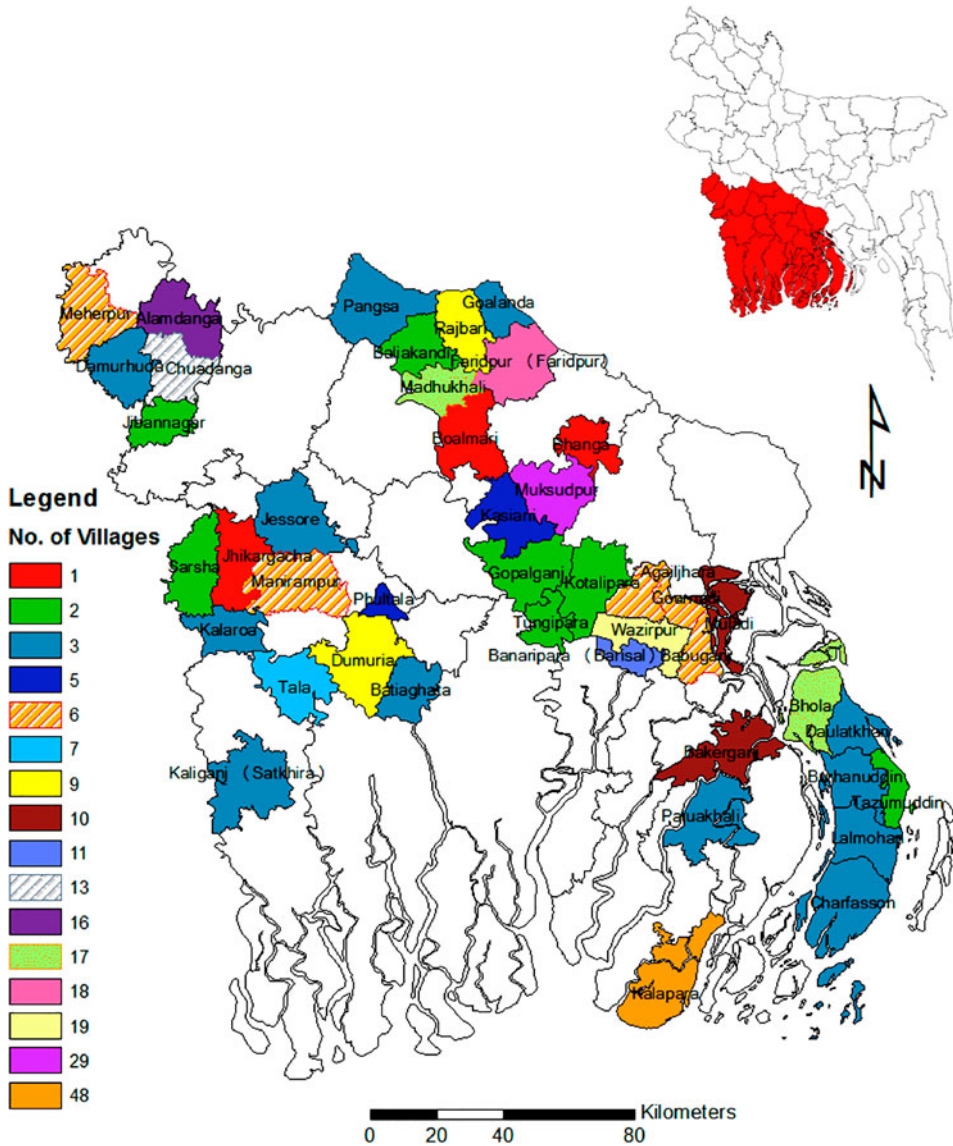
## 2. Methods

From October to December 2012, The International Maize and Wheat Improvement Centre (CIMMYT) partnered with the NGO Agricultural Advisory Society (AAS), to show 'Save More' in villages throughout southern Bangladesh. By March of 2013, AAS screened the film in 332 communities in 11 districts to over 85,000 people (87% male vs. 13% female; Harun-ar-Rashid 2013). At each village video showing, AAS left copies of the DVD with tea stall owners, NGOs, community-based organisations (CBOs) and other volunteers previously suggested by villagers as people who might screen the video on their own initiative in the future. Organisations were selected opportunistically, based on contacts with AAS, CIMMYT and other partners. Volunteers also received leaflets describing where to buy the machinery. Some recipients were people who helped facilitate the large, open-air screenings. Others approached AAS and requested DVDs, though at times AAS had to suggest that people take and reshew the video. By the end of 2012, AAS distributed 1,149 DVDs and helped establish 27 strip tillage demonstration plots in 151 villages in 11 districts and 41 *upazillas* (Figure 1).

In June–July of 2013, CIMMYT and AAS conducted a telephone survey of 227 people proportionally drawn from individuals in each *upazilla* who had received the DVD following video shows, including people from the public and private sector, and civil society (Figure 2, and Table 1). The telephone interview included the following questions, each answered as open-ended questions by the respondent, after which responses were classed into categories.

- (1) What did you do with the DVD?
- (2) Who watched the videos and where?
- (3) After watching the 'Save More' video, did people do things differently on their farms? If so, what?
- (4) After watching the 'Save More' video, have you or other people contacted a machine owner who offers such seeding and fertilising services?

In July of 2013, Agro-Insight and AAS held an additional 105 semi-structured interviews with volunteer video screeners in four districts, Faridpur, Rajbari, Chuadanga and Meherpur, in order to gain more detailed insight into how the distributed DVDs were used. Some of the meetings were arranged in advance by AAS field agents. Other interviews were organised opportunistically, when meeting volunteers in the field. As many



**Figure 1.** Number of villages in each administrative sub-district in which AAS screened ‘Save More, Grow More, Earn More’ in 2012.

volunteers as possible who were available were interviewed in these villages. Volunteers were rarely interviewed alone, as a crowd of onlookers usually emerged when interviews began. Onlookers had often watched the video which had been shown by the volunteer interviewed, so they tended to join in the conversation, adding additional information. Questions included the following:

- (1) What did you do with the DVD?
- (2) Who watched the videos and where?



**Table 1.** Reasons for including each type of volunteer video host in this study

Type of volunteer video host	Hypothetical reason for including this category
<i>Private sector</i>	
Agricultural equipment dealers	They have established shops where videos can be shown, and an interest in selling or repairing machinery
Tea stalls	They have DVD players, TV sets and show entertainment videos frequently to attract customers
Village shops	They have established shops, and are in the villages
Agro-input dealers	They have established shops, and are in the villages and have an interest in agriculture
Power tiller operators	They would provide some of the custom tillage services if farmers experimented with the innovations shown in the video
Cable TV operators	They are already showing videos, via cable, on TV sets in homes and businesses throughout the countryside (and in cities as well)
<i>Public sector</i>	
Government extension services (DAE)	They have the formal mandate for extension
UISC	They are a new type of organisation, present in many small communities, with video-viewing equipment
NGOs	They have a wide presence, often have video-viewing equipment, are motivated to work with rural people
CBOs	They have an even wider presence although are not as likely to have the video-viewing equipment

*Note:* DAE refers to Bangladesh's Department of Agricultural Extension. UISC refers to Union Information Service Center.

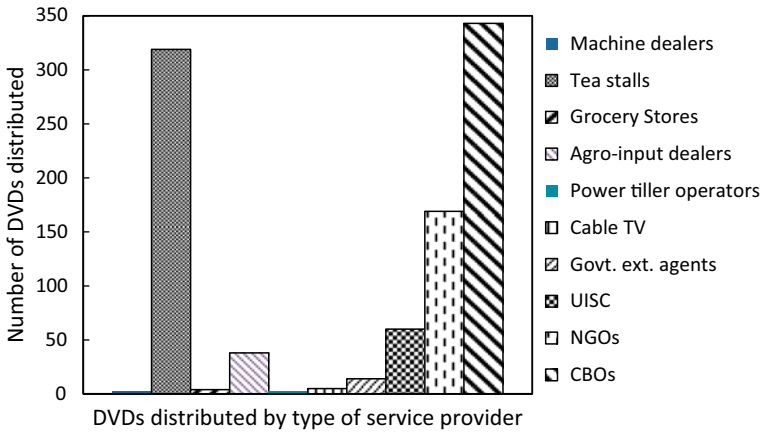
- (3) After watching the video did you do anything differently on your farm?
- (4) After watching the video did other people do anything differently on their farms?
- (5) After watching the video, have you or other people contacted a machine owner who offers mechanical seeding and fertilising services?
- (6) Did you see the demonstration plantings or read the leaflets distributed following video shows?

Data from the phone surveys were tabulated and graphically explored for the percent of responses to specific questions. Notes were taken during the interviews, and transcribed on the same day, so they would be computer searchable for thematic keywords. The resulting transcriptions were then analysed for thematic trends in respondents' statements, and for any divergent opinions or events reported, which is a standard, formal method in ethnography (Sanjek 2000).

### 3. Results

#### 3.1. Telephone Survey

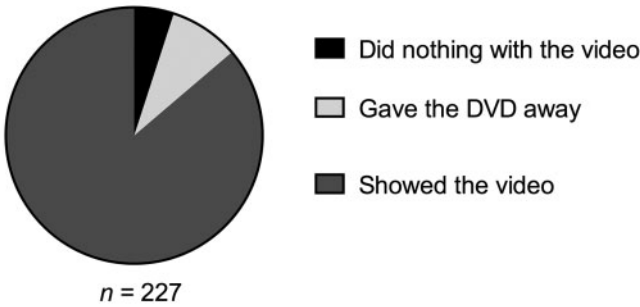
The phone survey indicated that most people found 'Save More' worth watching. Sixty-nine per cent of the 227 respondents showed the video to others (Figure 3A), while only 7% and 4%, respectively, gave away the video or did nothing with it. Of those who showed the video ( $n = 157$ ), the majority (58%) showed them in their office or business,



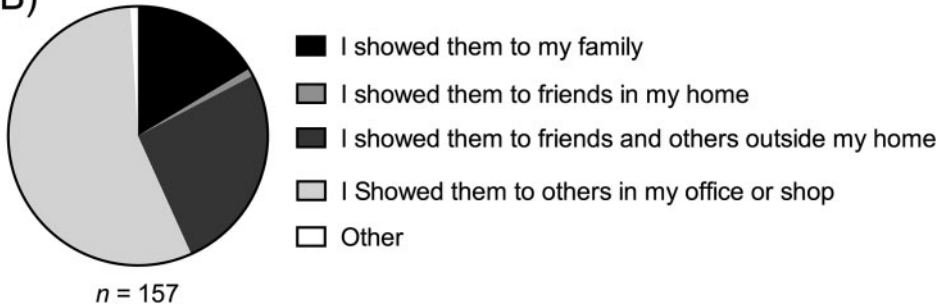
**Figure 2.** Number of DVDs distributed to each type of volunteer potential video shower in 2012–2013 by AAS. Note that some categories of volunteer did not distribute the received DVDs.

which included tea stalls, agricultural input dealer points and civil society organisations (Figure 3B). Another 27% showed them outside their homes or businesses to friends or others, while just 17% showed them to their family.

(A)



(B)



**Figure 3.** Phone survey results of volunteers who received DVDs. (A) What did you do with the video? (B) Of those who showed the video, to whom did you and where did you show the video?

### 3.2. *Semi-structured Village Interviews*

3.2.1. *Group 1—Agricultural Machinery Dealers.* We hypothesised that agricultural machinery dealers would be keen to show the videos as free advertising. Yet only one of the three showed the video, even though two of these dealers sell the machines featured in the video (the other sold spare parts only). One dealer, who makes bed planters and PTOS, showed the video to 100 farmers during 15 screenings in his shop. The other two gave the DVD to tea stall owners, as they were too busy making and fixing equipment to show videos, nor were they well equipped for showing videos.

3.2.2. *Group 2—Tea Stalls.* Tea stalls were included because they often have televisions and attract audiences, and thus may have been an ideal place to show videos (Van Mele et al. 2007). Most (27 of 29) of the tea stall owners interviewed did show the video (for an average of nine screenings), sometimes for many nights running (Table 2). Tea stalls can be in a village or in a bazaar (a cluster of shops in a small town). Conversely, village tea stalls are more likely to cater to farmers. The tea stalls in small town bazaars usually played the videos for villagers but rarely had many farmers in the audience. Social convention severely constricts women's freedom of movement in much of Bangladesh, with few women going to tea stalls (Table 2). Contemporary tea stalls show movies to encourage customers to linger and drink more tea (Table 3).

Most of the tea stall owners said that the farmers who did view the film liked it, and were interested in the content and would like to experiment with the new machinery, or at least learn more about it. But not all rural men choose to visit tea stalls. Wealthier and successful farmers rarely go. Village tea stalls reach more farmers than do tea stalls in bazaars.

In Maserdir village, a group of farmers had seen the video when AAS screened it publically, and had watched it again in a tea stall. They were so intrigued by the machinery shown in the video that they repetitively visited a nearby demonstration plot, located a few kilometres from their village, planted by local farmers in collaboration with the Cereal Systems Initiative for South Asia (CSISA), a project in which IRRI, CIMMYT and World Fish collaborate. Farmers observed new technical problems—for example, that maize sown on beds can be difficult to weed if the soil crusts. Yet the video had shown them potential benefits (for example, that land preparation costs can be lower using such machinery). As a result, the video gave them useful information on the new machines and practices even though they had not spoken with the farmer or extensionists involved in the demonstration. Rather they wanted to find more information the machinery and its performance as a result of seeing the video.

### 3.2.3. *Group 3—Village Shops and Grocery Stores*

Village shops and grocery stores are like tea stalls, but with even less incentive to show learning videos—the audience comes for merchandise and groceries, not to sit down and watch a video.

**Table 2.** Summary results by type of volunteer video host, in Faridpur, Rajbari, Chuadanga and Meherpur districts

Type	Agricultural equipment dealers (3)	Tea stalls (29)	Village shops (4)	Agricultural input dealers (9)	Power tiller operators (9)	Cable TV (6)	DAE(7)	UISC (19)	NGOs(7)	CBOs (12)
Number who showed the video	1 <sup>b</sup> (33%)	27 (93%)	3 (75%)	8 (89%)	8 (89%)	6 (100%)	4 (57%)	16 (84%)	7 <sup>c</sup> (100%)	9 (75%)
Number of times each host showed the video <sup>a</sup>	15	9	5	3	4	6	3	3	13	7
Reported mean number of viewers per host <sup>a</sup>	100	50	100	75	65	Unable to estimate	250	140	130	180
Estimated total number reached	100	1,350	300	600	520	–	1,000	2,240	910	1,620
Women viewers (out of total number reached)	None	Few	15	Some	112	Estimated 50%	340	320	560	450

*Note:* Numbers in parentheses indicate the number of hosts surveyed.

<sup>a</sup>For those who screened the video and could estimate audience size.

<sup>b</sup>Two additional dealers gave the DVD to tea stalls who did not show it.

<sup>c</sup>Three showed it in the office and four showed it externally to farmers.

NGO refers to non-governmental organisation. CBO refers to community-based organisation. DAE refers to Bangladesh's Department of Agricultural Extension. UISC refers to Union Information Service Center.

**Table 3.** Volunteer video hosts' motivation to show and distribute videos

Type	Agricultural equipment dealers (3)	Tea stalls (29)	Village shops (4)	Agricultural input dealers (9)	Power tiller operators (9)	Cable TV (6)	DAE (7)	UISC (19)	NGOs (7)	CBOs (12)
Motivation to show videos	Low	High	Low	Low	Low	Medium	Medium	High	High	High
Reasons	They usually lack the projection equipment and the time	They show programmes that attract customers	After customers have bought something at the store, there is little reason to entice them to stay longer	Their customers will buy seed and fertiliser no matter what tillage techniques they use. Dealers might show more interest in other topics	Lack of projection equipment and time	They are not really sure if people watched the videos when they were broadcast. They would be more motivated if local leaders expressed demand for videos	Motivation possibly lined to personal interests and to projects on the video's topic	They have the time and the projectors, and it is in their interest to gain favour with the public that pays them	Depends on project interests and access to farm communities	Especially high if members are themselves farmers
Motivation to distribute videos	High	Low	Low	Low	High	Low	Medium	High	High	Medium
Reasons	People who become interested in the machines away from are potential customers	Giving away DVDs could draw customers away from the tea stall	Unless the videos were on a topic that was related to the shop's business	For the same reason cited above, but may depend on topics covered in videos	It could help create demand for their services	Giving away DVDs could draw viewers away from their network	For the same reasons as above	It could help gain favour with the public. Interest could be high especially if the UISC were allowed to sell the DVDs	To gain favour with their public. NGOs that loan money are interested in any innovation that improves farmers' ability to repay loans	They are probably more interested in seeing the videos themselves than in distributing them

Note: Numbers in parentheses indicate the number of hosts surveyed.

#### 3.2.4. *Group 4—Agricultural Input Dealers*

Because small agricultural input businesses sell supplies to farmers, we hypothesised that they would have more incentive to show learning videos other than groups studied. But this was not the case. Fertiliser and seed dealers have narrow but assured markets. The dealers who were most interested in the videos were those who were farmers themselves. Other dealers commented that farmers will buy seed and fertiliser whether they use the machines or not. Dealers however reached more women with the video than other private sector actors, but this was primarily due to one particular dealer who showed the video to groups of farmers who produce seed for him, including women.

#### 3.2.5. *Group 5—Power Tiller Operators*

Power tiller operators are tillage service providers who plough fields before planting. Because the power tillers they use can be detached from their two-wheeled tractors, and the direct seeding equipment featured in ‘Save More’ can be reattached to the same machine, tillage service providers are the most likely group to actually employ the techniques shown in the video to establish crops. We hypothesised that they would see the videos as a way to promote a new business niche. The results of our interviews however indicate that they are in the land preparation business, not the video business. Unlike tea stall owners, the machine operators have no shop to show a video in. They indicated that showing videos takes time away from their core work with farmers. A few gave the DVD away or showed it in their local tea stalls. Most however showed the video at home, but reaching a fairly large audience of 65 people on average, including 21% women.

#### 3.2.6. *Group 6—Cable TV Operators: Dish-lines*

Cable TV has a vested interest in showing attractive videos, and TV does reach women. Small cable TV stations are called ‘dish-lines’ because they have satellite dishes and run cable lines to homes and businesses. The dish-lines are a recent innovation in Bangladesh, but have caught on quickly. The dishes capture 40 or 50 channels, including Hindi musicals, contemporary and classical Bengali films, news, and the Discovery, Animal Planet, National Geographic, and Aljazeera channels, to name a few. Many stations occupy one or two more channels simply by showing videos purchased in local bazars. There are some big dish-lines in cities, but the ones in the villages and small towns can be quite small. Some have just a few hundred subscribers and charge just \$1.35–\$2.00 a month. All cable TV owners who received DVDs showed ‘Save More’ at least once (Table 2). However, most of the dish-line operators complained about showing the videos, and said that in the future they would want to be paid for repetitive screenings.

#### 3.2.7. *Group 7—Department of Agricultural Extension (DAE)*

The groups described above were all private enterprises. Considering Bangladesh’s National Extension programme, only about half of the DAE officers interviewed had screened the videos at all. However, the ones who did show the video reported positively

on the video screenings, for example they thought that strip planting works well and expected it to be adopted quickly. Of those who showed the video, repeat showings were common, reaching women as well as men (Table 2).

### 3.2.8. Group 8—Union Information Service Centre (UISC)

Since 2007, Bangladesh has moved to privatise select public services (Minges, Raihan, and Raina 2001). UISCs are designed to help people with various kinds of electronically derived information and paperwork at the local level. Most UISCs have a room in the Union Parishad (Union Council) office, and are staffed by ‘*uddokta*’ or ‘entrepreneurs’, some of whom are women. UISCs are funded by the United Nations Development Program and the Government of Bangladesh Access to Information project which supplies communication equipment, including laptops, personal computers, printers, scanners, video cameras, still cameras, web cameras, modems, multimedia projectors and photocopier machines. By 2011, the project had trained 9,000 entrepreneurs to run over 4,500 UISCs, covering all of Bangladesh (Minges, Raihan, and Raina 2001). The entrepreneurs get free equipment, electricity and office space, but no salary. Instead, they receive a fee for each piece of paper or electronic information they print or process, including marriage, birth, death and succession certificates, visa photos, letters or other documents. Some also make wedding videos, for a fee. They scan documents, help people get online to do schoolwork or get bank applications, all through cost-per-service models.

UISCs have also been targeted by development agencies to supply extension information on a fee-for advice basis. Indeed, IRRI is investigating collaboration with the UISCs in Bangladesh to promote transfer of site-specific rice crop and nutrient management advice. UISC operators may also be interested to screen videos for a nominal fee. Although the *uddoktas* have no mandate for agricultural extension, most of them did show ‘Save More’, and more frequently than the DAE. In some cases, UISCs reported that they actually solicited help from DAE agents during screenings. All interviewed UISC stated that they would continue to show videos in the future, with several considering fee-for-viewing approaches.

### 3.2.9. Group 9—NGOs

All of the NGOs showed the video, an average of 13 times each. Of all surveyed groups, NGOs were the most successful at reaching women, who roughly comprised 60% of the audience at each screening.

### 3.2.10. Group 10—CBOs

Like NGOs, CBOs are common throughout Bangladesh. Some are savings-and-loan groups that focus on financial service provision; others are clubs sponsored by NGOs, and there are a number of integrated pest management (IPM) clubs that evolved from FFS programmes. The CBOs can create a space where women can interact (Deutsch 2003).

Interview results indicated that if a CBO has a DVD player, the members of the CBO usually watched the video several times, and that their learning is enhanced if they have other information or access to a nearby demonstration plot. Of the 12 CBOs surveyed,

two-thirds showed the video in an average of seven screenings each, to approximately 180 people per CBO (28% women), in line with earlier findings for CBOs (Van Mele et al. 2007). CBOs are effective at disseminating information on their own volition by repetitively screening videos.

In the village of Nehalpur, Chuadanga district, one CBO, an IPM club that developed following farmers' involvement with field schools, watched the video eight times. All 100 members of the club saw it, with most members watching the video at least six times. The IPM club farmers indicated their interest to lower their maize crop production costs. Following the video screenings, they became increasingly interested in bed planting, which can reduce costs by machine direct seeding as opposed to manual planting, and by lowering irrigation water requirements (Krupnik et al. 2013). They consequently studied the video to see if they wanted to invest in the new tillage and crop establishment method, after which they began to purchase bed planting services from a tillage service provider. They also shared the DVD with a tea stall, which showed the video six times. Another IPM club member, who was also a power tiller operator, watched the video and became interested in the featured machinery. After seeing the video, he enrolled in a CSISA sponsored course on the machinery. At the time of investigation, the IPM club was planning to buy a bed planter using the club's shared membership fund. The remainder of the CBOs interviewed, however did not move beyond screening the films to actual adoption of agricultural machineries, suggesting that sometimes experience with an FFS is able to create a CBO which is so well organised and pro-active that they can take the leap of investing in machinery, based just on information they saw in a video.

#### **4. Discussion and Conclusions**

Different actors shared the videos in different ways. In the telephone survey, 69% of the people who received DVDs showed 'Save More' to others, generally in their place of business. Fewer (27%) showed the videos in community settings, or to their family (17%).

In-depth interviews showed that farmers who watched 'Save More' often asked to see it several times. All of the groups who showed the video did so 3–15 times. Table 2 shows that (removing Cable TV, for which audience size could not be estimated) 99 DVDs reached 8,640 people. Each DVD costs \$1 to press, so about 87 people were reached for each dollar spent on pressing DVDs.

Each DVD given to an NGO reached 130 people and CBOs reached 180 people per DVD, including women, while tea stalls conversely did not reach any women due to social conventions that restrict women's movements in public in much of Bangladesh. Within the more successful groups, a number of the farmers who saw the video were so intrigued by the content that they sought out demonstration plots where they could see the crops growing.

Agricultural machinery dealers, village shops, agricultural input dealers and power tiller operators are all various types of village-based retail dealers, offering goods or services (e.g. machinery, groceries, farm supplies or tillage). While none were particularly enthusiastic about showing videos, the single agricultural machinery dealer who did show the video did so 15 times. However, two more machinery dealers gave away their DVDs. Our survey results indicate that such fee for service groups with other core business



incentives and busy schedules are often ill-equipped to screen videos, unmotivated to do so and do not seem to see the video as a way of promoting their business.

Conversely, tea stall owners showed the videos an average of nine times, but with smaller audiences reaching 50 people each (many people watched the videos several times in tea stalls). Tea stalls use television and entertainment to assure that their clients linger and purchase tea, cigarettes and small snacks. As such, videos and television are a core part of their business model. Agricultural extension videos therefore have considerable potential for repetitive screening when DVDs are transferred to tea stalls. However, hardly any women viewed 'Save More' in tea stalls. And without an informed extension agent or farmer present, tea stalls may be poorly equipped to facilitate informed discussion. Further research is needed to investigate this in Bangladesh, but a study in Benin showed that farmers who watched rice videos without facilitation were nonetheless able to recall the information 5 years later, and had experimented with the new ideas in their own fields (Bentley et al. 2014).

While all cable TV operators showed the DVD at least once, they were poorly motivated to do so without payment. Unlike in other developing countries, where radio and TV stations are starved for content in the local language, Bangladesh's stations have ready access to high-quality video material. Bengali is the world's sixth most widely spoken language (Austin 2008), and the country's media outlets are overloaded with content. If there was a large enough supply of attractive learning videos, a dish-line might be able to create an audience—for example, by broadcasting the educational programmes as a regular feature at specific times. Yet even those cable TV operators who were excited about showing more videos had no idea how many people watched the videos. Perhaps the best strategy to motivate them in future is to have local government authorities give out the agricultural videos so that the station owners feel that their clients want to watch the videos, not that an outside agency is pushing them.

Governmental DAE extension agents showed a medium level of interest in showing the videos, with only 57% of DVD recipients doing so. In the future, they may need more official encouragement (e.g. as part of an organised extension project or as the result of official mandate) to screen videos in their communities. With video screenings, DAE agents reached audiences which were comprised of women at an estimated rate of 34%, which is the second highest observed percentage among all groups.

The results from the UISCs were like the tea stalls, with more people reached in the UISC (140 per DVD) than in tea stalls (50 each). UISCs are largely non-agricultural actors although they do have equipment to show videos. Like the tea stalls, the UISCs were more likely than the extension agents to show the videos, though they reached fewer women (14%). In some instances, they were also able to get support from extensionists to respond to audience questions following the video. UISC staff also tended to be younger than other groups, and showed an enthusiasm for the DVD. As such, projects aiming to distribute extension DVDs in rural communities should strongly consider collaboration with UISC entrepreneurs.

Each of the NGOs who received DVDs organised an average of 13 independent screenings each, reaching a total estimated audience of 910 people, of which 62% were women. But for NGOs to be continually involved in showing videos, they want videos that support specific project activities and mandates. NGOs involved in financial services and rural credit can benefit from films on improved farming practices which can raise farmers' incomes and thus increase their potential for repaying loans.

CBOs reached an audience of 1,620, 28% of whom were women. They are highly motivated to show videos, especially where CBO members are farmers themselves although they showed less interest in distributing DVDs. As such, development projects aiming to distribute videos should specifically target CBOs with videos, but not ask them to distribute DVDs. Of the CBOs interviewed, several showed initiative to learn more and experiment with machine aided direct seeding.

With the exception of agricultural machinery dealers, most of the groups who received a DVD showed it, consistent with results of Okry, Van Mele, and Houinsou (2014) in Benin. When deciding which actors would be promising volunteers to screen videos, planners may ask the following questions:

- Does the intended recipient have reliable equipment to screen videos? (If no, the recipient may still be a good candidate to distribute videos to others, such as some of the machine dealers and shop owners in this study, who gave DVDs to tea stalls which did show them).
- Does the intended recipient have time to screen videos? (This is why some of the power tiller operators opted not to screen videos).
- Is the intended recipient used to charging money to show videos? (If so, then the recipient may be poorly motivated to show extension videos for free, which may limit viewership. In the future, cable TV owners and the UISCs could be encouraged to find ways of charging to show videos). Communication media are changing quickly in Bangladesh and in much of South Asia. The dish-lines and the UISCs are both recent innovations.
- Does the intended recipient have an extension mandate? (e.g. the DAE agents in this study, some of whom did manage to screen the video).
- Is the intended recipient likely to reach women and youth?
- Is the intended recipient interested in the content of the videos? (Some of the CBOs and NGOs in this study made additional effort to show the videos because of their interest in improving their own farm's productivity through CA).

In this study, we found that farmer audiences will watch videos as many times as they want, and then decide what other information they need before making a decision about machinery adoption. The equipment featured in 'Save More' is complex enough that this video was merely a first step to raise awareness of direct seeding and machine sowing techniques. Interested farmers—especially in CBOs—next demanded not only to see the machines themselves, but also to see the results of their use in demonstration plots with a crop interest.

Innovative farmers and tillage service providers will generally experiment with promising new ideas, but in this case, would-be experimenters would first have to buy an expensive piece of machinery, which is a barrier. Rogers (1983, 199) noted that mass media, such as 'farm magazines, bulletins and container labels' may inform people, but not persuade them to try an innovation. In this study, we observed that a farmer-to-farmer video can act as a surrogate for person-to-person messaging by incorporating the voices of other farmers into video. Farmer-viewers found this persuasive, and many sought more information on the performance of the machinery. Chand, Sharma, and Gupta (2011) commented that agricultural machinery has low 'trialability' because it is difficult to trial equipment without purchase and use. Interviews with CBOs indicated that farmers may be able to improve machinery trialability by buying PTOS and bed planters as a club or a

group although that may only work well only where groups are well organised. This is where public extension services are important, as they can provide equipment and technical information when demonstrations are planted. Experiences like this one in Bangladesh, where some community volunteers can distribute DVDs, and others can screen the videos for farmers, are a step towards cost-effective sharing of information that farmers want to see.

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The authors work for the organisations that made and distributed the videos described in this paper.

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