

## Mobile App-based Learning Courseware

### *Challenges, lessons and results from a 6 month pilot*

### Introduction

Aajeevika Krishak Mitras (AKMs)/Community Resource Persons (CRPs) and Community Agriculture Managers (CAMs) are field level workers (FLWs) or extension agents engaged by the Jharkhand State Livelihood Promotion Society (JSLPS) to disseminate improved agricultural practices among smallholder farmers in their communities. AKMs provide farmers video-based training on crop-specific micro-practices shortly before the sowing season. Often, the AKMs are themselves oriented to the improved practices just once. There is no systematic assessment of their understanding during this orientation. Observation of the video dissemination by the AKMs provide some scope of assessment and feedback, however, these are neither systematic, nor reliable in large scale operations.

To optimize training resources Digital Green deployed a mobile app based courseware in 25 blocks spread across 12 districts of Jharkhand. This courseware, built on a learning platform developed by Microsoft Research, allowed AKMs to see videos on improved agricultural practices on a phone at any time. We deployed courseware for 1) pigeon pea; 2) potato and designed self-assessment tools integrated within the courseware to assess learning outcomes. AKMs received continuous messages to remind them when to view the video (in sync with the agricultural season).

Digital Green deployed and tested the courseware with approximately 330 FLWs in Jharkhand, all of whom had access to a smart phone.



### Process

- 1. Content Finalization** – Based on the agricultural season and JSLPS's priority, we decided on pigeon pea and potato to be included in the courseware. Under pigeon pea we created one course and under potato six courses. Each course had different video-based lessons. Besides the video, for assessing the users and gauging the effectiveness of the app, we developed a pre and post-test for each course. Both the pre and post assessments had the same multiple choice questions to make them comparable. The pre-test was administered as a pen and paper test during the trainings, while the post-test was integrated into the app as a quiz, which the users could take after finishing all the lessons (videos) under a course.

2. **Training of Trainers** – About 30 JSLPS staff, which included block coordinators and program managers, Project coordinators and State resource Persons, were oriented on the app in Ranchi as a first step. The session included an introduction to the pilot project and the platform, the pen and paper pre-test, and going through the app.
3. **Training of FLWs** – The trained JSLPS staff, in turn provided an orientation to the FLWs who were our final users. Like the master trainers, they took the pre-test, and went through the app. The master trainers were provided a guideline on conducting the session to ensure that no important point were missed.
4. **Final roll out** – After the training, when the users started taking the course, we were able to track their performance on the analytics dashboard. Notification were sent to the FLWs at frequent intervals to complete the courses on the app itself.

## The Pilot – Analysis

34% of the total 330 users took at least 1 out of the 7 courses. The below table shows course wise uptake along with the average quiz score for each.

Name of the course	No. of lessons (videos) under the course	Course completion (Total no. of learners who have completed the course)	Course completion (% of total no. of learners who have completed the course)	Average quiz score % (Average score of all learners who have completed the quiz)
Pigeon Pea – Pest Management	2	100	30.30	74.75
Potato – Introduction, seed selection and treatment	3	82	24.84	89.16
Potato – Farm preparation and sowing	1	110	33.33	86.59
Potato - Pre-harvest process	1	31	9.39	90.63
Potato – Harvesting, sorting, grading and storage	2	23	6.96	94.57
Potato – Pest & Disease Management	1	86	26.06	78.49
Potato - Irrigation	1	86	26.06	86.05

The two courses with the lowest completion rates are Potato – Harvesting, sorting, grading and storage and Potato - Pre-harvest process. The reason being that these two courses were withheld at the start of the pilot and opened only in December, since that is when the season for these processes begin. Though the opening of these courses was accompanied by an announcement about the same, it did not show a very high uptake.

Besides the continuous feedback we were getting from the field during the roll out of the pilot, we took some structured feedback as well, towards the end of the pilot. Some key points which affected the use of the app along with field observations are as below:

- **Internet connectivity issues** - There were huge connectivity and network issues in some areas which is one of the biggest reasons for the low uptake in some places.
- **Viewing method** - A lot of respondents downloaded the video for viewing, while some reported online viewing. It depended on the internet connectivity of the region. In areas with low internet speed, users downloaded the video for later viewing. The respondents who downloaded the video reported 60-100 min time for it to download.
- **Partner prioritization** – One reason for the variability in data between areas, is the priority it was given by the implementing organization. While in some areas the partner organizations did regular follow up with their cadre to complete the courses, others did not make it a priority. Therefore, after the trainings, the courses were put on the backburner.
- **Mobile Operating Systems** - There are some phone models and operating systems which do not support the app. We have been able to identify and report them to Microsoft.
- **Smart phone usage** – Though all the users under the pilot were smart phone users, the level of comfort with it differed amongst the users. The users who were generally not comfortable in navigating a smart phone, tended to not use the app.
- **Length of the Video** - Most respondents found the length of the video to be appropriate (*Each video is of about 8-10 minutes long*)
- **Quiz** - Most respondents did not face any issues in reaching and taking the Quiz and found the questions to be easy
- **Certificate** - Most respondents did not face any issues in reaching the certificate, and it worked as a positive reinforcement for users.
- **Announcements (Notifications)** - Users reported checking the notifications for the announcements we were sending, though we did not see any improvements in the uptake of the courses after sharing notifications.
- **Preferred training methodology** - Almost all respondents suggested the use of both the app and the in-person training together as a way for them to get oriented on the content.

Crops	Average Pre-test Score*	Average Post-test Score*	% Improvement
Pigeon Pea	5.78/9	6.72/9	16.26
Potato	10.21/15	13.13/15	28.59

*\*There is a difference in the number of users who took the pre and post-test. The number of users who took the pre-test was slightly more than those who took the post test.*

## Recommendations

Through this study and from anecdotal feedback from the field we have found this training app to be user friendly and effective. We recommend implementing the app in selected areas, after gauging the internet connectivity and interest of the partner. With a few technical and programmatic changes described below, this app can replace the in-person trainings over time.

- The pre-test can be integrated into the app. For the pilot, we kept it as a pen and paper test, since we did not want to take the risk of losing the data in any way. Comparisons with the post tests will become easier and much easier if it is also a part of the app.
- Though the feature of notifications is very useful, a user is only able to view it once he/she is logged into the app. If the users can get the notification on the phone instead, it can alert them in time about any changes made to the content.
- There is a feature for the users to discuss a video lesson. It was not used even once during the pilot. It can become a useful space to clarify any questions a user might have on the video, and to make the app more interactive. The app administrator could initiate some of these discussions.
- Some of the text in the app still needs to be localised in regional languages.
- The app needs to be tested in correlation with disseminations, to check if it affects the quality of the screenings
- Lastly, there should be a mechanism for the FLWs to reach out for help in case they face any issue with the content in the video.

## APRIL 2019

**Author:** Ankita Dubey, Training Program Manager, Digital Green

**Contributors:** Dr. Namita Singh PhD, Head – Training, Digital Green  
Dr. Ritesh Kumar PhD, Deputy Program Manager, Digital Green