Journal of Community & Communication Research
ISSN: 2635-3318
Volume 6, Number 2, December 2021
Accessible at: https://jccr.sccdr.org.ng

REVIEW OF THE USE OF VIDEO IN AGRICULTURAL EXTENSION TO INCREASE THE ADOPTION OF AGRICULTURAL INNOVATION

***[1]Ibeawuchi B.O., [1]Adisa, P.T., Gbede O.I., [1]Bilisuma K.W., [1]Derara S.F., and [1]Aminu H.A.**
[1]Department of Resources Utilization and Plant Protection, China Agricultural University 17 Qinghua E Rd, Haidian, Beijing, 100083, China.
[2]Department of Agricultural Extension and Rural Development, Michael Okpara University of Agriculture Umudike, Abia State Nigeria.
***Corresponding Email: benedictaibeawuchi@gmail.com**

ABSTRACT
Agricultural production in developing countries has been limited by several factors: slow adoption of agricultural innovations due to lack of information and knowledge. Agricultural Extension in these countries is faced with diverse challenges such as; top-down mechanism, cost intensiveness, low personnel to farmer ratio, among others, which has not been effective in reaching the large farming population across broad geographical boundaries. Increasing agricultural productivity to cope with the 10 billion global estimated population requires enhancement of rapid uptake of agricultural innovations by smallholder farmers in developing countries through digital tools. In this study, we examined the impact of video-mediated (Digital Green) agricultural Extension on the adoption rate of agricultural innovations in developing countries. We examined the working mechanisms of digital green; and the activities and the role of digital green in increasing the uptake of agricultural technologies by farmers. The result indicated that Digital Green increased the adoption rate of agricultural innovations, enhanced farmers' access to markets through the Loop, and indirectly increased yield due to farmers' adoption of yield-enhancing innovations. The study recommended using videos to disseminate innovations to farmers as video-mediated agricultural extension helps lower the perceived risks of agricultural innovations as farmers can see the results from the beginning, leading to fast adoption of innovations.
Keywords: Agricultural Extension, digital tool, digital green, innovation, adoption, cereal production.

INTRODUCTION

Agricultural productivity deficits in Sub-Saharan Africa (SSA) are large compared to developed countries, and a significant causal factor is the slow adoption of agricultural innovations (Hörner D *et al.*,2019). Farmers' lack of information and knowledge has limited the adoption of agricultural technologies (Aker JC.2011). Agricultural Extension provides a non-formal, out-of-school, agriculturally related continuing education for a wide range of audiences such as; farmers, spouses, youths, and community. It also serves for multiple purposes, including agricultural development, community resource development, group promotion, and cooperative organizational development (Vanden Ban AW *et al.*,1996). Traditional Extension primarily has been based on physical contact between extension agents and the target audience. The effectiveness of this approach has been hampered as a result of low extension staff to farmer ratio ranging from 1:1800 to 1:3000 in developing countries, top-bottom approach, high training

costs, exclusion of marginalized and resource-poor farmers, inadequate public funding, and lack of qualified extension supervisors and worker ((Aker JC.2011; Swanson, *et al.*,1997). Although government-funded agricultural extension is still active, its impact has waned in most developing countries. The extension functions are now being carried out by a dispersed, disorganized body of entrepreneurs, organizations, and projects (Van Mele P. 2011). The challenges mentioned above are evident in traditional agricultural extension necessitating the improvement of agricultural practices. There is a need to develop technologies that can aid the effectiveness of Extension in reaching farmers with the latest agricultural information and technology to improve their productivity.

Information and Communication Technology (ICT) strengthen agricultural extension in developing countries to improve farmers' management practices on crop, livestock, and natural resources (Mushtaq S *et al.,2017*). Over the last few decades, digital technologies have been significant in disseminating agricultural information (Mee W *et al.*,2007; Brennan LE *et al.*, 2007). Mobile devices have been in use in agriculture since the early 21st century. However, mobile agriculture has primarily been audio and SMS services and its large-scale adoption is limited by technological constraints (Aker JC.2011).

Other information and communication tools such as videos can be used as channels of technology transfer using various mediating agents (extension workers, community organizers, progressive farmers) and tools (televisions, portable projectors, and computers). Video Mediated Agricultural Extension (VMEA) excels the conventional extension approach because it allows for audience-specific modifications, ensures consistency in content delivery, and is cost-effective (Abate GT *et al.*,2018). The unique components of Digital Green are a participatory process for video production, a digital video database generated locally, human-mediated instruction for video dissemination and training, and regimented sequencing to initiate a new community (Gandhi R *et al.*, 2007). This study focused on digital green, a video-centric non-governmental organization that seeks to digitally disseminate agricultural information to smallholder farmers by harmonizing information technology, videos in agricultural information dissemination, and human-mediated instruction for effective training with videos FAO, 2015.
The objectives of the study were to:

i. Examine the use of videos in agricultural Extension in developing countries.
ii. Examine the impact of digital green.
iii. Examine the activities and the role of digital green in increasing the uptake of agricultural technologies by farmers.
iv. Examine the problems solved by digital green.

Videos in agricultural Extension

In the mid-21st century, agricultural extension in developing countries was a reproduction of the traditions of former colonial powers (Axinn GH *et al.*, 1972). Extension programs were premised on the proposition that agricultural productivity was principally limited by farmer apathy, inadequate social arrangement, and lack of local leadership. In contrast, economic and technological constraints were minimal limitations.

The effectiveness of agricultural extension in developing countries has been hampered by several factors which include but are not limited to: low Extension to farmer ratio ranging from 1:1800 to 1:3000 in developing countries; lack of qualified extension workers, involvement of experts on duties other than Extension; imbalance in the appropriation extension resources to cash crops and food crops; decline in funding of extension activities; lack of suitable adaptation of technology packages to local conditions, weak research-extension linkages (Swanson BE *et al.,* 1997; Feder G *et al.*, 2001). The traditional agricultural Extension is labor and cost-intensive (Mushtaq S *et al .*, 2017). The required work cannot be provided for agricultural extension delivery due to a lack of qualified extension workers, involvement of experts on duties other than

Extension (Feder G *et al*., 2001). Extension staff can overcome these challenges by maximizing the potentials of ICT.

Information and Communication Technology (ICT) in agricultural Extension encompasses the utilization of videos, radio, social media, etc., for the transfer of agricultural innovations to farmers to increase agricultural productivity and improve their standard of living. Although several studies have been conducted on social media, radio, and other tools for strengthening agricultural Extension, limited studies have been undertaken on video-mediated agricultural Extension to increase agricultural productivity in developing countries. Van Mele P, 2011 reported that the extension staff used videos to train farmers and provide farmers with new ideas of extension experiences. The visual aspect of videos is one of the features that makes them effective in training farmers. Other features indicated were the need to have farmers demonstrate the technologies rather than experts. Videos on agricultural practices have been reported to significantly impact women's livelihoods in several countries such as Bangladesh (Chowdhury A *et al.,* 2015; Van Mele P, 2007) and Benin (Zossou E *et al*., 2009; Zossou E *et al*., 2010). In Nigeria, teaching rural children about the construction of vegetable beds, simple farm tools, and soil conservation videos demonstrated the same effectiveness level as real-life demonstrations (Isiaka B, 2007). When made available, farmers in developing countries watch videos, as in Bangladesh (Chowdhury A *et al.,* 2015).

Farmers can utilize agricultural videos in diverse ways. Van Mele P, 2011 reported that the farmers watched videos mostly in small groups. Van Mele P, 2007 wrote that extension workers who used video reported more efficiency in communicating new scientific and local innovations to farmers. Chowdhury *et al.,* 2011 reported stimulating reciprocal sharing of new knowledge and skills between women, other farmers, and service providers. At least 2 in every10 of the households achieved rice self-sufficiency, with no changes observed in control villages. According to (Chowdhury A *et al.,* 2015), the video-mediated extension approach (VMEA) is more effective than the traditional extensional approach (TEA). VMEA helps to convey new ideas so as to improve the Knowledge, Attitude, and Practices (KAP) of farmers in Bangladesh about complex agricultural innovations.

The video-mediated extension approach creates a suitable environment for experiential learning by conveying ideas, motivations, and commitment to innovation among farmers. Thus, influencing their existing perception, values, and practices. (Zossou E, *et al.,* 2009; Zossou E, *et al.,* 2009) Reported a faster rate of diffusion of rice parboiling innovation through video as compared to conventional training. Karubanga G *et al.,* 2016) stated that video-mediated agricultural Extension enhances self-directed learning by fostering knowledge and experience sharing among rice farmers in Uganda compared to the face-to-face extension approach. Maredia *et al.,*2018 reported that video-mediated training was equally effective as conventional Extension in stimulating learning and adopting post-harvest technologies among low-literate farmers in Burkina Faso.

Summarily, video-mediated information delivery has been reported to induce behavioral changes in farming communities (Zossou E *et al.,* 2009; Van Mele P 2006) and increased the effectiveness of the conventional extension approach (Gandhi R Toyama K, 2009; Vasilaky K *et al.,* 2018). Various types of farmer-to-farmer videos exist Sustainable Tree Crops Program (STCP) cocoa, Agro-insight, Digital Green, Kenyan farmer (Van Mele P. 2011).

Digital Green

Farmers in developing countries are often reluctant to adopt agricultural innovations due to crop failure's hardship (George T, 2014). Reluctance to adopt innovations could be minimized through effective extension practices. However, conventional extension practices are costly and labor-intensive. Thus, there is a reduction in the ability to develop nations to provide adequate extension services (Ponniah A. *et al*.,2008; Swanson BE *et al*., 1997). Digital green is a non-

governmental global development organization that aims at empowering smallholder farmers to improve their livelihood. This improvement is by harnessing the power of technology and social organizations, thus enhancing cost-effectiveness and community participation in the already existing agricultural extension system. Farmers were trained to produce short videos highlighting their challenges, solutions, and significant achievements (Gandhi R *et al.,*2007).
Digital green was first considered a project in Microsoft Research India's Technology for Emerging markets in 2006 by Rikin Gandhi and his colleagues. It later branched out as an independent NGO in 2008 (Gandhi R Toyama K, 2009). Digital green works across eight states in India, Ethiopia, Mozambique, Afghanistan, Niger, Tanzania, Ghana, and Afghanistan. It engages over 150,000 farmers (over 70% women) in more than 2,000 villages (Digital Green Trust, 2010).

Project focus

Digital green seeks to ensure better, faster, and cheaper delivery of agricultural innovations to increase the agricultural productivity of smallholder farmers, thus, enhancing poverty reduction, nutrition, education, and income. Delivery of innovation is achieved by Digital green through (Abate GT *et al*., 2018):

i. Increased adoption rate through a feedback loop allows for farmers' participation, resulting in products and services that meet farmers' needs.
ii. Development and delivery of innovations within the shortest time frame through rapid-cycle innovation
iii. Provision of group-specific solutions to increase farm productivity

Digital green working mechanism

The unique components of digital green are video production by the local farmers and the extension agents. They disseminate and train farmers by local stakeholders; initiation of new communities, a database that allows for online and offline access; an iterative model equipped with analytical tools to better address needs and interests of the communities; and interactive feedback platforms (Gandhi R Toyama K, 2009; Gandhi R *et al.,*2007). (Digital Green Trust, 2010).

a) Database: Digital green is video-centric. It overcomes the challenges of high illiteracy among the farming population inherent in developing countries. Farmers rely more on auditory and visual senses, and video comes close. Thus there is a higher level of adoption as farmers view demonstrations, and the result of adopting an innovation can be displayed during information dissemination (Digital Green Trust, 2010).
b) Production: Video recordings provide a systematic, comprehensive, and local-specific organization of information (Gandhi R *et al.,*2007).
c) Distribution: Videos are distributed mainly as DVDs to villages. The villages are provided with a television and DVD player operated by Community resource persons (CRPs) and managed by local farmers. In the evening, farmers gather at local places (such as schools, markets, bus stops, temples) in groups of 10-20 to watch the videos. The extension staff cannot reach all the farmers at a time. Multiple screenings are done on a rotational basis (Digital Green Trust, 2010).
d) Sequencing: The screening of the videos is made to attract the audience's attention and sustain their interest. Having the audience is achieved by including entertaining clips (Gandhi R, Toyama K, 2009).
e) Diffusion: Extension staff monitors the dynamics of the audience and encourages the audience to attempt the process being demonstrated in the videos and announce their availability for individual screening (Digital Green Trust, 2010).
f) Scalability: Digital green is designed to operate on a hub and spoke mechanism. The spokes are neighboring villages that need help but are challenging to reach because of a lack of resources. The hubs are responsible for content production, distribution, and

teacher training. Information flows from the hubs to the spokes (FAO, 2015; Harwin K *et al.*, 2014).

Digital green involves different stakeholders that can facilitate and increase the effectiveness of the planned activities effectiveness. In this case, the main stakeholders of the projects are Farmers, Human mediators (Extension agents, subject matter specialists), Non-Governmental Organizations (Digital Green, Bill and Melinda Gates Foundation, Catholic Relief Services), Government bodies (Ministry of Rural Development, India; Ministry of Agriculture and Natural Resources, Government of Ethiopia) and International Bodies (Gandhi R *et al.,*2007).

a) Farmers: The farmers featured in video content and the innovation targets (Gandhi R, Toyama K, 2009).
b) Community Resource Persons (CRPs): Conduct screenings, transport DG equipment to different segments of their communities, maintain attendance records and track the interest and adoption of the promoted techniques. These mediators are additionally supported by a full-time extension system that provides mechanisms for feedback and audit for a cluster of villages (FAO, 2015; Harwin K *et al.*, 2014).
c) Non-Governmental Organizations: Digital Green (train mediators, extension staff, and researchers to enhance effective delivery of materials; provide equipment),
d) Government bodies: Government bodies Provide funds and human resources (extension agents, subject matter specialists, etc.) (Gandhi R *et al.,*2007).
e) International Bodies: Provision of funds.

Problems Solved by the program

a) Low rate of innovation dissemination and adoption: Digital Green provides agricultural information through locally produced videos. Digital Green uses local social networks to connect farmers and experts. The pleasure of appearing on screen motivates farmers, and homophily they explored it to reduce the distance between teacher and learner (Gandhi R, Toyama K, 2009). Before the digital green intervention, there was a low adoption rate of innovations among farmers resulting from difficulties of reaching a large and widely dispersed population of farmers through the conventional extension approach. Contrary to the 1% to 4% monthly adoption rate recorded by the classical T&V, the proportion of farmers that implemented new practices disseminated through digital green ranged from 10% to 33% (Gandhi R *et al.,*2007). Thus, digital green enhances rapid innovation dissemination and promotes a higher adoption rate. Since its inception in 2007, the average adoption rate has been 69% [33].
b) Increasing gross yield using fewer inputs using System of Rice Intensification (SRI): SRI is an agronomic technique that increases gross yield, typically, with fewer inputs (Noltze M *et al.*, 2012; Thakur AK *et al.*, 2011). Digital green videos were used to disseminate yield-increasing practices such as seed treatment, nursery bed cultivation, later transplantation, and cono weeder utilization. The use of DG led to an over 50% increase in the probability of adopting the SRI innovation (Gandhi R, Toyama K, 2009; Vasilaky K *et al.*, 2018).
c) Easy access to markets through Loop: DG developed Loop. This mobile app improves farmers' access to the market by linking them to local village produce entrepreneurs who aggregate farmers and sell their produce directly to wholesale buyers. Volume and sales have their records on the app, and the receipt is usually sent to the farmers through the app. At the end of the transactions, farmers receive the money for their produce, and the local village entrepreneur earns a commission for his service. Through Loop, farmers have sold 4700tons of vegetables, leading to more than USD 1,000,000 in cash (Digital Green, 2017).

Farmer Groups attending disseminations	Number of videos shown	Adoption rate	Average disseminations per day	Average attendance per dissemination
3333	189	20.00 %	11	13

Fig 2a: An adoption rate of innovations disseminated by Digital Green (DG) (COCO Analytics).

Country	Unique Viewers	Villages	Videos Produced	Disseminations	Adopters
Ethiopia	31670	744	32	1949	5636
India	22150	208	2	2154	20907
Total	53820	952	34	4103	26543

Fig 2b: Number of adopters of innovations disseminated by DG (COCO Analytics).

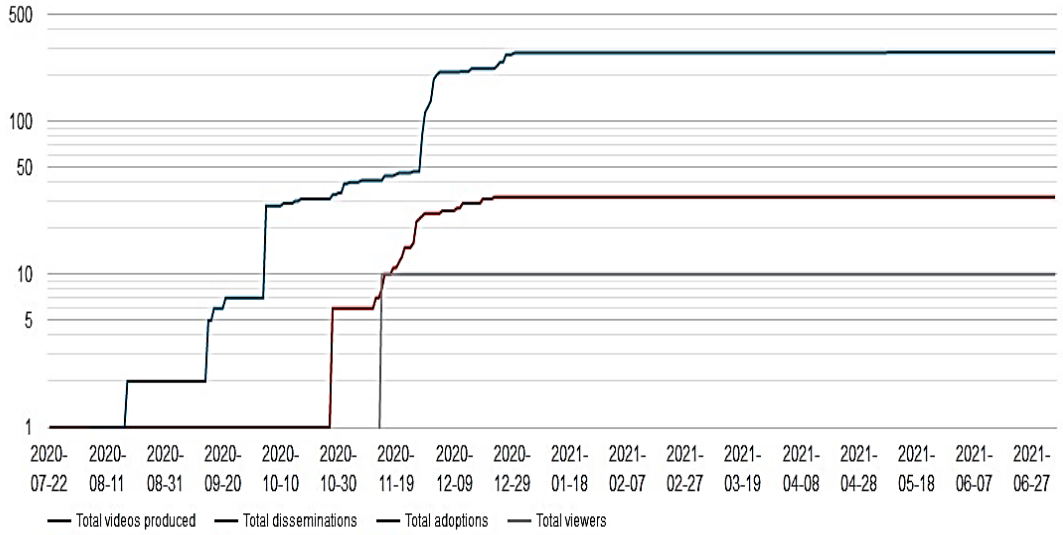

Fig 2c: Number of innovations disseminated by DG (COCO Analytics).

The problems not solved by the project

a) Lack of information on post-adoption experiences: There is little or no information on the post-adoption experiences of farmers. The post-adoption report gives room for evaluation of the program. Assessment results are used for program improvement (Bernard T *et al*., 2017).

b) Technology constraints: Digital green is video-centric; thus, it relies heavily on low-cost equipment for information, but there are difficulties in maintenance and power. Increased equipment supply accompanied by identifying qualified maintenance and repair units might mitigate these constraints (Bernard T *et al*., 2017).

CONCLUSION

Increasing agricultural productivity to cope with the 10 billion global estimated population requires enhancing rapid adoption of agricultural innovations by smallholder farmers in developing countries through digital tools. DG is a non-governmental organization that harnesses the power of technology and community organization to promote the adoption of agricultural innovations to improve the socioeconomic status of farmers. The unique components of digital green are video production by local farmers and extension agents, dissemination and training by local stakeholders. The initiation of new communities is a

database that allows for online and offline access; an iterative model equipped with analytical tools to better address the needs and interests of the communities; and interactive feedback platforms (Gandhi R, Toyama K, 2009; Gandhi R *et al.,*2007).

DG has been found to increase the adoption rate of agricultural innovation and has impacted farmers socially by improving their access to market through Loop; it also creates an avenue for farmers to interact through community videos. In comparison to traditional Extension, DG has the potential to increase the adoption rate, thus, increasing agricultural productivity. These results provide valuable insights for policymakers, Ministries of Agriculture, and researchers towards the effectiveness of video-based extension approaches and its potential to close information gaps, ultimately leading to more widespread adoption of agricultural innovations. To further increase the adoption rate, it is recommended that videos be used to disseminate innovations to farmers as video-mediated Agricultural Extension and digital agriculture helps to lower the perceived risks of agricultural innovations as farmers can see the results from the beginning, and it leads to fast adoption of innovations

REFERENCES

Abate GT, Bernard T, Makhija S, Spielman DJ. Accelerating technical change through video-mediated agricultural Extension: Evidence from Ethiopia 1. 2018.

Aker JC. Dial "A" for agriculture: A review of information and communication technologies for agricultural Extension in developing countries. *Agricultural Economics*. 2011.

Axinn GH, Thorat S. Modernizing world agriculture : a comparative study of agricultural extension education systems. Praeger; 1972.

Bernard T, Makhija S, Orkin K, Seyoum Taffesse A, Spielman DJ. VIDEO-BASED AGRICULTURAL EXTENSION Analysis of a pilot project in Ethiopia. 2016.

Brennan LE, Hochman Z, McCown RL, Darbas TM, Carberry PS, Fisher JR, et al. Using computer-based technologies to support farmers' decision making. In: Rural Industries Research and Development Corporation Canberra [Internet]. Canberra; 2007 [cited 2020 May 6]. Available from: https://www.researchgate.net/publication/271770709_Using_computerbased_technologis_to_support_farmers'_decision_making.

Chowdhury AH, van Mele P, Hauser M. Contribution of Farmer-to-Farmer Video to Capital Assets Building: Evidence from Bangladesh. *J Sustain Agric*. 2011;

Chowdhury A, Odame HH, Thompson S, Hauser M. Enhancing farmers' capacity for botanical pesticide innovation through video-mediated learning in Bangladesh. *Int J Agric Sustain*. 2015;

COCO Analytics. Digital Green - Overall Statistics [Internet]. [cited 2020 May 6]. Available from: https://solutions.digitalgreen.org/coco/analytics/

Digital Green Trust. Digital Green [Internet]. 2010 [cited 2020 Mar 1]. Available from: http://digitalgreentrust.org/aboutus/

Digital Green. Digital Green's LOOP Pooling Technology and Extension Networks for Market Access About Digital Green [Internet]. 2017 [cited 2020 May 5]. Available from: https://www.digitalgreen.org/wp-content/uploads/2017/06/Digital-Green-LoopbriefJune2017.pdf

FAO. Success Stories on Information and Communication Technologies for Agriculture and Rural Development [Internet]. 2015 [cited 2020 May 7]. Available from: www.fao.org/publications.

Feder G, Willett A, Zijp W. Agricultural Extension: Generic Challenges and the Ingredients for Solutions. In: Knowledge Generation and Technical Change. Springer US; 2001. 313–53.

Gandhi R, Toyama K. Digital Green: Participatory Video and Mediated Instruction for Agricultural Extension. 2009.

Gandhi R, Veeraraghavan R, Toyama K, Ramprasad V. Digital green: Participatory video for agricultural Extension. In: 2007 International Conference on Information and Communication Technologies and Development, ICTD 2007. 2007.

George T. Why crop yields in developing countries have not kept pace with advances in agronomy. Vol. 3, *Global Food Security*. Elsevier; 2014. p. 49–58.
Harwin K, Rikin G. Digital Green A Rural Video-Based Social Network for Farmer Training. Innovation [Internet]. 2014 [cited 2020 Mar 1];9(3/4):53–61. Available from: https://www.digitalgreen.org/wp-content/uploads/2017/06/322-797-2-PB.pdf.
Hörner D, Bouguen A, Frölich M, Wollni M. The Effects of Decentralized and Videobased Extension on the Adoption of Integrated Soil Fertility Management – Experimental Evidence from Ethiopia [Internet]. Cambridge, MA; 2019 Jul [cited 2020 Mar 4]. Available from: http://www.nber.org/papers/w26052.pdf.
Isiaka B. Effectiveness of video as an instructional medium in teaching rural children agricultural and environmental sciences. (Undetermined). *Int J Educ Dev using Inf Commun Technol*. 2007;
Karubanga G, Kibwika P, Okry F, Sseguya H. Empowering farmers to learn and innovate through integration of video-mediated and face-to-face Extension approaches: The case of rice farmers in Uganda. *Cogent Food Agric*. 2016;
Maredia MK, Reyes B, Ba MN, Dabire CL, Pittendrigh B, Bello-Bravo J. Can mobile phone-based animated videos induce learning and technology adoption among low-literate farmers? A field experiment in Burkina Faso. Inf Technol Dev. 2018;
Mee W, Katz E, Alem L, Kravis S. Sociotechnical challenges in the design of a knowledge portal. Vol. 10, *Information Communication and Society*. Routledge ; 2007. p. 5–28.
Mueller ND, Gerber JS, Johnston M, Ray DK, Ramankutty N, Foley JA. Closing yield gaps through nutrient and water management. *Nature*. 2012;490(7419):254–7.
Mushtaq S, Reardon-Smith K, Cliffe N, Ostini J, Farley H, Doyle J, et al. Can digital discussion support tools provide cost-effective options for agricultural extension services? *Inf Technol Int Dev*. 2017;13:52–68.
Noltze M, Schwarze S, Qaim M. Understanding the adoption of system technologies in smallholder agriculture: The system of rice intensification (SRI) in Timor Leste. Agric Syst. 2012;
Pingali PL. Green revolution: Impacts, limits, andthe path ahead. Vol. 109, Proceedings of the National Academy of Sciences of the United States of America. *National Academy of Sciences*; 2012. 12302–8.
Ponniah A., Puskur R, Workneh S, Hoekstra D. Concepts and practices in agricultural Extension in developing countries: A source book. Int Livest Res Institute, Addis Ababa, Ethiop ISBN. 2008 Mar 27;92–9146.
Swati G. Investigating bottlenecks in our agriculture-centered project in Bihar [Internet]. [cited 2020 May 8]. Available from: https://www.digitalgreen.org/blogs/investigatingbottlenecks-in-our-agriculture-centric-project-in-bihar/
Swanson BE, Bentz RP, Sofranko AJ. Improving agricultural Extension. A reference manual. 1997.
Thakur AK, Rath S, Patil DU, Kumar A. Effects on rice plant morphology and physiology of water and associated management practices of the system of rice intensification and their implications for crop performance. *Paddy Water Environ*. 2011;
Van Ittersum MK, Cassman KG, Grassini P, Wolf J, Tittonell P, Hochman Z. Yield gap analysis with local to global relevance-A review. *F Crop Res*. 2013 Mar 1;143:4–17.
Van Mele P. Videos that Strengthen Rural Women' s Capability to Innovate. Commun Dev Soc Chang. 2007;
Van Mele P. Video-mediated farmer-to-farmer learning for sustainable agriculture A scoping study for SDC, SAI Platform and GFRAS. 2011.
Van Mele P. Zooming-in zooming-out: A novel method to scale up local innovations and sustainable technologies. *Int J Agric Sustain*. 2006;4(2):131–42.
Vanden Ban AW, Hawkins HS. Agricultural Extension. 2nd Editio. Oxford: Blackwell Science. Oxford : Blackwell Science; 1996.
Vasilaky K, Toyama K, Baul T, Karlan D. Learning Digitally: Evaluating the Impact of Farmer Training via Mediated Videos [Internet]. 2018 [cited 2020 Feb 27]. Available from: https://www.socialscienceregistry.org/trials/313

Zossou E, Van Mele P, Vodouhe SD, Wanvoeke J. Comparing Farmer-to-Farmer Video with Workshops to Train Rural Women in Improved Rice Parboiling in Central Benin. *J Agric Educ Ext*. 2009 Dec;15(4):329–39.
Zossou E, Van Mele P, Vodouhe SD, Wanvoeke J. Women groups formed in response to public video screenings on rice processing in Benin. *Int J Agric Sustain*. 2010;
Zossou E, Van Mele P, Vodouhe SD, Wanvoeke J. The power of video to trigger innovation: Rice processing in central benin. *Int J Agric Sustain*. 2009;

Figures

Fig 2a: Adoption rate of innovations disseminated by DG
Fig 2b: Number of adopters of innovations disseminated by DG
Fig 2c: Number of innovations disseminated by DG