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Field Level Online Service (*agrinetbd.com*) for Sustainable Agriculture

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Abstract

In Bangladesh we have hundreds of modern, sustainable agricultural technologies as well as new technologies are coming regularly with better solutions. As for example today we have technologies like submerge, salinity, drought tolerant rice varieties, sex pheromone trap, *guti* urea, but at the farm level adoption is not satisfactory due to lack of result oriented field level farmers to farmers motivation techniques. Intervention of online technologies can empower field level extension officers, farmers as well as people by presenting latest farming methods with successful farmers. As farmers are not able to communicate with extension officers or farmers of far distance for their excellent products sometimes they are depending on the local seed or pesticide businessmen rather extension officers. For this farmers are losing their money, good health, time and destroying environment for all livings. If appropriate information are supplied in the proper time that would be useful for farming. Our adopted, succeed technologies according to our locality should be focused through online by updating regularly that will motivate our farmers rapidly because anybody can see the successful production with technologies and communicate with respective farmers by this website. In these purpose ***agrinetbd.com*** has been produced and operated from Mirsharai upazila of Chittagong district. In this connected world we cannot pass even a day without information and communication technology (ICT). Internet is gaining popularity because of the huge expansion of mobile networks. The authors are grateful to a2i, Prime Minister's Office, Bangladesh for national and international trainings about ICT, appropriate suggestions encouraged to produce the website.

Key words: *Field level online service, agrinetbd.com, farmer participation*

Introduction

In Bangladesh we have 8.51 million hectares of cultivable land as well as 7.91 million hectares of net cropped land with 190% cropping intensity. Among these there are 2,04,366 hectares of fallow land (*Krishi Diary*, 2015). We should focus on increasing cropping intensity through disseminating appropriate technologies using ICT based media across the country. Access to technology is now not a big challe[1]Senior Documentation Officer, Bangladesh Agricultural Research Council Farmgate, Dhaka-1215
nge for farmers but it is indispensible to ensure meaningful use of technology and in this regard the government and private sector should come forward to start large-scale capacity building programs for farmers. No doubt technology has created new opportunities to modernize agricultural sector in the developing countries and Bangladesh is not beyond this reality.

The contribution of agricultural sector to GDP is around 16.33 percent (Krishi Diary, 2015) and in rural areas most of the people depend on farming to earn their livelihood. Growth of industrialization reduces farmlands and also creates threat to people who are involved in this profession. As a result it is really challenging to ensure food

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security for a growing population of the country with limited resources. For achieving the well-being of the greatest number of people in the country, we should develop our ICT based agricultural services with proper emphasis. According to BTRC, out of 4.31 crore internet users in Bangladesh, 4.31 crore people use internet through their mobile phones. It is a huge scope to enhance knowledge of farmers by developing appropriate content and mobile application for them. ***Agrinetbd.com*** has been produced with modern agricultural technologies as well as farmers' indigenous knowledge in all parts of the country. Originally started from Mirsharai upazila of Chittagong district, the service is very easy for every visitors having the feature of frequent updating.

Materials and Methods

A pilot project was conducted in Hazisharai agriculture block of Durgapore union under Mirsharai upazila of Chittagong district. At first 30 rice producing farmers were trained about modern agricultural technologies such as land preparation, seed treatment, quality rice variety, ideal seed bed, line sowing following ten lines after one gap (logo system), *guti* urea application, perching, IPM, balanced fertilizers, perfect seedlings, irrigation, minimum use of pesticide, crop cutting, seed collection, preservation, marketing and so on. In boro season, BRRI dhan 28 and 29 were cultivated by practicing all modern technologies under close monitoring by Upazila Agriculture Office. Farmers' trainings as well as motivations were done at the field regularly through hand practices encouraging by the authors with team members and senior officials of DAE like Additional Director and Deputy Director also visited the pilot project area and appreciated the nice initiative.

A team was formed with following DAE officials:

1. Md. Aminul Haque Chaowdhury, Deputy Director, DAE, Chittagong (Adviser)
2. Mohammad Shah Alam, Upazila Agriculture Officer, Mirsharai, Chittagong (Team Leader)
3. A S M Samsul Haque, Sub-Assistant Agriculture Officer (SAAO), Hazisharai block (Member)
4. Md. Monjor Haider, SAAO, Raipore block (Member)
5. Sharmin Akter, SAAO, Durgapore block (Member)
6. Md. Abdul Kader, SAAO, Talbaria block (Member)

A cascading workshop was conducted with 45 field officers (SAAO) of Mirsharai upazila with the support of Access to Information Project (a2i) under the Prime Minister's Office on 17 January 2015. The workshop was held at Upazila Agriculture Office and detailed discussion was made about use of ICT and Innovation. At the pilot project area farmers were motivated with technologies from seed to seed and result was excellent. With the increase about 15% yield, 20% production as well as safeguarding environment, the farmers were happy as they earned more and saved their valuable time. Neighboring farmers were also motivated with the pilot project and followed the successful farmers. The team leader (first author) also received good support from the a2i by getting opportunities to attend about 20 programs of national and international level by which he received huge knowledge on ICT like software development.

Results and Discussion

To scale up the successful events as well as technologies implemented under the pilot project, a website, ***agrinetbd.com,*** was developed. The website was user friendly for the farmers and could be usable by a mobile phone.

a) Farmers' knowledge on ICT: A field survey was conducted in the locations (piloting areas) where 150 farmers responded on their impression of the website. The farmers' idea about ICT based media is presented in Figure 1.

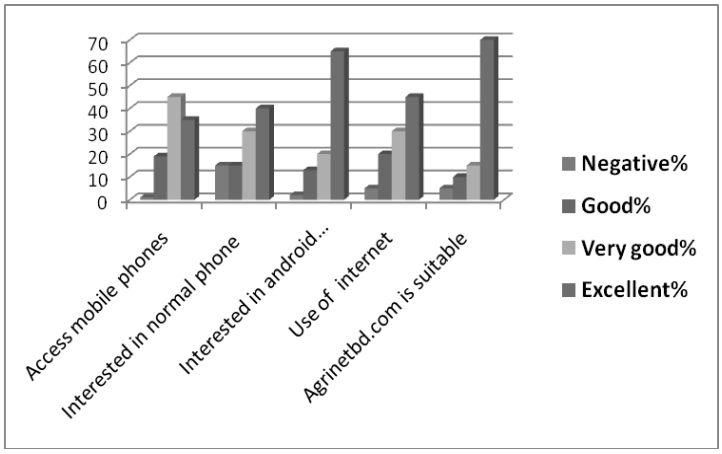

Figure 1 Farmers' idea about ICT based technologies

It was observed that farmers were using mobile phones more than before and feeling interested in android mobiles. However majority of them were not using agriculture related websites. It is necessary to train them on how to use appropriate websites. It is also important to provide training to SAAOs so that they help farmers enabling in using websites or the farmers can get information with the help of SAAOs. Farmers' use of different types of ICT based communication media can be seen in Table 1.

Table 1 Farmers' use of communication media

Criteria	Farmers (%)
Used of mobile phone	90
Used android based mobile phone (smartphone)	20
Used websites	1
Got information from Union Digital Centre (mostly non-farming)	65

Xceedbd.com, a software developer company, helped in developing the website and the project personnel got suggestions from a2i through different programs. Different success stories, production technologies, newly introduced

crops/plants, problems with appropriate solution of acute pests, plant nutrition problems etc. are being uploaded regularly with real picture and photographs from the field. Contact numbers are provided with identity of successful farmers so that any interested person especially the farmers can easily contact with their desirable persons as well as visit the farms that was very successful in production and made a handful amount of profit.

b) Information Sources for farmers: The farmers were asked to indicate their sources of farming information. Data presented in the Figure 2 show that the producers are getting necessary information on agricultural technologies from different sources such as upazila office, union office (including FIAC), contacting through mobile phone, from SAAOs in field and home etc.

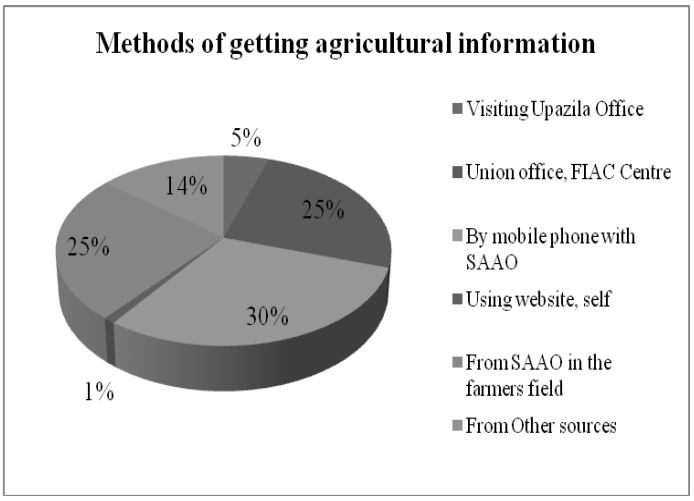

Figure 2 Sources of information for farmers

There are a lot of options in agrinetbd.com website that include recent articles, information on technologies implemented, success stories of farmers, problems with solutions, activities of projects, farming practices of the month and responsible officers. It will easily possible to connect the whole country because there is an option according to divisions, districts, upazilas, unions and blocks. Clear options are created in a way that officers from the levels from block to division can provide necessary information. It is very convenient for a field level officer like SAAO that he/she can easily post an article with photographs related to a technology that is being implemented in the concerned block and he/she is able to send a photograph with along with description of any problem and its solutions.

In the age of ICT, many field level officers are nowadays able to access internet facilities. However, the rate is not 100%. It is the high time to be well equipped with ICT especially online based agriculture service so that all field level officers who are disseminating agricultural technologies among farming communities can make full use of facilities available in online or can be served by using mobile phones. One thing is

very important that all farmers are not using mobile phones, and the number may be around 10-15% in this stage of the program. Few farmers have access to android mobile phones and they can be trained while the rest of the farmers can receive website based facilities through field level agriculture officers like SAAOs or UAOs. DAE is trying to develop all field level officers so that they can make good use of information and communication technologies and serve the farmers quickly.

Farmers or anybody can get information easily with exclusive photographs collected from respective fields. However, for making successful log in, registration is essential that are identified/viewed by administration officers. If anybody would like to make comments, there is an option for it (this option is under processing).

c) Use of ICTs by SAAOs: There was a time when mobile phones were not available for field officers of DAE (SAAOs), but this is available to everyone. The demand of android mobile or smart phone is rapidly increasing because everybody can easily visit websites, chat with others, take pictures, and send emails and so on. DAE officers are also increasingly using computers for official works. Figure 3 shows the trend of using different ICT base devices by the field officers of DAE. This change creates a good opportunity for the extension service to promote ICT based activities.

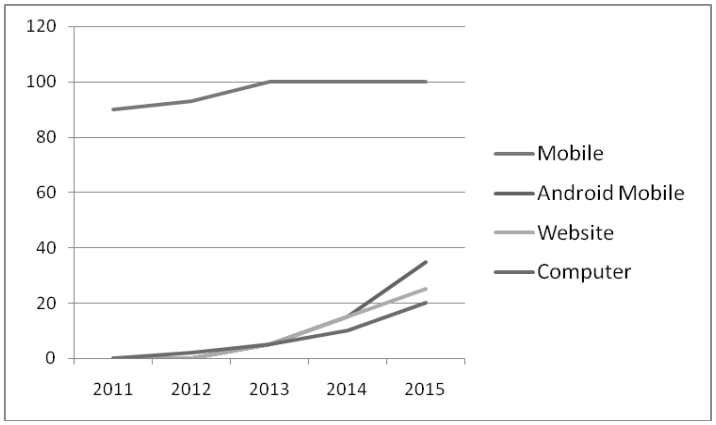

Figure 3 ICT users are sharply increasing among field officers.

Using the ICT based technologies to draw attention of farmers on specific technologies is considered as an effective way of learning for the farmers. This certainly motivates the interested and intended farmers more effectively than the traditional extension methods based on advice. It is plausible because seeing is the best way to make one believe in and change attitude. There are more than thousands of success stories of adoption of useful and modern technologies but very few are recorded to show the interested and new farmers for motivation. By using agrinetbd.com a field officer from any part of Bangladesh can post his/her documents properly within a minute that can be seen and used by a farmer or a officer of the other part of the country.

There is a need to change the traditional reporting system under the extension service for making good use of this method. The website has been developed in a way that a field officer can easily send messages or reports on his/her activity by using a mobile phone instead of going office. This report will be available in each and every office home page. As for example if Hazisharai block officer X sends report or upload any articles, it will easily be seen in the block window under upazila page and then other pages of the same division. All reports will be viewed with a summary identifying its posting areas.

d) Innovation of agrinetbd.com: Farmers need local problems with appropriate solutions and success stories. As for example Mirsharai is a notable upazila for growing rice (aman, aus), vegetables (long bean, brinjal, cabbage, cauliflower, bean, aroid, bitter gourd etc.), mung bean, felon, fruits (dragon fruit, banana, jackfruit), cassava and other crops.

Farmer of this upazila do not need to know about jute cultivation. It is important to post information on cultivation of crops/plants like dragon fruits, cassava, long bean in hilly areas that will be more helpful for the farmers or interested persons of other districts. They may also be more interested to know about total cultivation as well as marketing issues and nutrition value. On the other hand, as for example, Narsingdi (Shibpur upazila) is a focus area for banana and lemon cultivation. Officers of this upazila should provide information on production of banana and lemon with clear pictures in the website. So this massage with photographs would be more effective for interested and new farmers. One farmer or interested person can make contact with anybody he or she likes regarding areas for learning ideas.

As for example in Mirsharai upazila, more than 80 hectares of land in rabi (winter) season are under farming as *ail* crops for bean locally named as *Suri* and *Vada Seam*. Although the farmers are getting huge profits by managing maximum cropping intensity, this success story is largely unknown to other areas of the country. Information of this simple technology in the website may encourage the farmers of other districts. In the same way knowledge on many indigenous technologies may be shared through this website along with that of the modern technologies.

It should be considered that farmers do not need to know only problems like production technology or pest attack, they like or search for the varieties or the complete methods that will be easy to practice as well as cost effective and beneficial. By this website farmers will be able to comment about posted articles from different areas, getting the positive or negative massages from all over the country, take appropriate decision whether the technology/variety should apply in their area or not.

In fact, most of the available agriculture based websites are not updating frequently as there are always need for information on new crops/verities, environment friendly technologies, effective pesticides to control pests etc. As for example, effective technologies like rat control and pest management were uploaded in the websites and farmers were able to use the techniques successfully.

e) Info-graphic of agrinetbd.com:

In the info chart the author mentioned infestation of rats with its solutions.

Conclusion

Agrinetbd.com has been developed to inform farmers regularly on updated massages, problems with solutions, newly introduced technologies and crop/plant varieties. It is true that today our farmers are not capable enough to use websites efficiently to get updated information on technologies. However, they can receive valuable information with the help of field level officers of DAE or UDC. In the near future we may expect that all of our field officers will be well-equipped with ICTs and farmers will be able to access websites for their desired information. For achieving sustainable food security and earning foreign currency by exporting agro-products

in future, concerned authority of Bangladesh should undertake efforts towards popularization of digital technologies and development of agro based websites for ensuring regular, effective and desirable massages.

Reference

Krishi Diary, 2015. Agriculture Information Service (AIS), Ministry of Agriculture, Dhaka.