

Abstract

Farmers mobile applications provide agricultural information including weather, cultivation techniques, and market prices to improve farm management. By using these apps, farmers can also communicate directly with agricultural technicians, traders, agri-shop owner and livestock experts. Moreover, the use of ICT applications in agriculture not only reduce the lack of information in agricultural value chains but also improve farmers access to agricultural information at the right time. The Gulf of Mottama Project (GoMP) supported the development of a farmers' mobile app called "Greenway", which includes a farming record feature to record cost and benefits of production.

This Master thesis addresses the potential of the farm-based decision by using farmers' mobile application "Greenway" to record economic data on crop production from farmers in the Gulf of Mottama Project (GoMP) in Myanmar. This study explores the socio-economic status and agricultural knowledge of the households. The research particularly looks to the monsoon paddy income, green gram income, and summer paddy income. The major constraints of the farming record feature in the Greenway app and the data quality of the app are also analysed. The study was conducted through a face-to-face interviewed survey and distance interview survey by phone with 100 households trained and non-trained to use farming records in the mobile app in the Gulf of Mottama Project area led by Helvetas Myanmar in Mon State and Bago region from December 2020 to February 2021. Descriptive analysis with two sided tests for significance, binominal analysis, multiple linear regression analysis and paired t-test for data quality assessment were applied to analyse the data. The descriptive analysis shows that the majority of the selected households' heads are male with an average age of 51 years old. About 45% of the farmers have a primary education level, 87% of household heads have access to a mobile phone of which 93% are smartphones. For farming and communication, 75% of households possess a sprayer, 60% a harrow machine, 99% a mobile phone, 91% a motorbike and 86% possess a TV and radio. About 52.5% of households' income derived from farm income to which monsoon paddy contributed 58%, green gram 33%, and summer paddy 9% with an annual average income of 3,887,986 MMK (2165.84 CHF), 2,135,775 MMK (1189.76 CHF), and 586,285 (326.60 CHF) respectively. The economic indicators of trained and non-trained farmers are significantly different at an alpha level of 10 percent regarding the total income of crop production. Agricultural information, which farmers are most interested in, is not significantly different for trained and non-trained farmers. Farmers are most interested to get agricultural information about weather, market price, "pest and disease", and cropping technique. These all information are available in the farmers' mobile app "Greenway". For the farmers most useful and frequently used sources of information are neighbours, mass media (TV & radio), GoMP staff, and merchants. For the households' mobile access, age and gender male are negative correlation, but household income is a positive correlation. The major advantages of farming records are that farmers noticed farming "cost and benefit", fertilizer application ratio, cultivation technique effect on yield, and pest and disease infection time. Therefore 74% of farmers changed input use management, 60% changed cultivating technique, varieties, and financial cost management, 56% made better plans for next season, and 46% shared knowledge for the farm management with other farmers. The major challenges of farming record feature are that 78% of farmers cannot enter the data into the app directly, 58% required help by GoMP staff and 20% from family members. Other external factors are poor internet connection and high internet cost, telecon connection instability, Covid-19 pandemic, and policy fluctuation in Myanmar. To use the app regularly, farmers need to receive more training by GoMP, to have financial aid to pay the internet bill.

The study also assessed the quality of data farmers entered in the farming record feature in the Greenway app by comparing app with survey data. No significant differences for crop yield and income were found. However, there were some significant differences in land preparation and input cost. Nevertheless, numerically these differences were small and consequently the differences are not relevant for the farmers context. Therefore, the data entered in the app are reliable for practical use.

Keywords: Farmers' mobile app, ICT, Information, Myanmar, Smallholders