

# Development and Status of Smartphone Application for Farm Recordkeeping\*

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**Abstract** This study was carried out with the goal of improving accessibility for farmers in record management. The pre-survey for farm records found that the main reasons for lack of records were “no need” and “no time” to keep such records. Based on the results of the pre-survey of smartphone-based farm recordkeeping, the major composition articles were management books, daily work logs, analysis books and additional books compiled by setting log in, notice and suggestions. The number of smartphone-based farm record books was 4,430 nationwide. We also updated farms keeping records on seven occasions for user convenience. Regional differences in the utilization ratio of record books showed that continuous promotion and education aimed at users were key points of success for farm recordkeeping books.

**Key words** Smartphone, Application, Farm Recordkeeping

## 1 Introduction

Farm recordkeeping could be called the starting point for a systematic analysis of management, but is not being properly done at farms due to various factors. While many farmers feel the need to keep records, farm recordkeeping is insufficient due to the lack of accounting knowledge and appropriate recording media available to farms, while related education is also inadequate.

As a result, it is difficult to identify management conditions, and management diagnosis or future management plan on this basis also becomes difficult. While the importance of keeping management records is obvious, the reality is that few relevant studies exist in academic circles. So not only is it an urgent task to identify farmers' conditions vis-a-vis management records to clarify what influences conditions related to the records, but also pressing is promoting the keeping of management records by developing a farm recordkeeping book easily accessible and used by farmers that can be widely spread.

In the Rural Development Administration, Park Pyeong Shik, Jung Ho Geun and Lee Sang Deok (2001) studied farm diagnosis technology, use and tasks using a standard diagnostic table, while Park Seong Young (2001) found that farm management consulting saw good performance in studies related to the evaluation of management consulting's promotional effect on farms using an itemized standard diagnostic table. Meanwhile, Lee Young Man (2002) proposed improving convenience in recordkeeping, eliminate labor on the account closing procedure and qualitative improvement or quantitative increase of information provided by bookkeeping to improve the bookkeeping system through a study on the limitations of using agricultural bookkeeping for agricultural management analysis. Lee Sang Hak, Choi Se Hyeon, Son Chan Soo and Ha Hyeon Jeong (2012) also found the need to enable

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basic management diagnosis along with reflecting farmer opinions, such as enabling easy recording by requesting minimum records on the basic objective of developing the book, in a study on farm management record practices and the characteristics of relationships of farmers having influence over this.

On the other hand, while the number of smartphone users was merely 700,000 in 2009 according to Jeon Su Yong and Park Young Soo (2011), phenomenal growth of more than ten fold within a year raised the number to 7.17 million in 2010. According to Kim Yoon Kyu and Lee Dong Hoon (2011), the smartphone application market also gradually rose in tandem with the increased number of smartphone users. Along with this, a study by Ku Cheol Mo, Kim Hee Woong and Jeon You Hee (2011) on smartphone users, users were found to have much interest toward various functions because they were shown as devoting exploratory interest toward new smartphone functions the more they use their devices. And a report by Angela, Abdul, Hafeez, Srecko and Raj (2006) discovered the huge potential for wireless device apps, including those for smartphones, due to applied technology using wireless technology, though this might not necessarily be smartphones, with applications in a wide range of fields such as health care due to cost reduction, transmission of high quality information and effectiveness of performing clinical practice.

Park Kye Won (2012) in 2012 developed a system to perform simple analysis by storing data recorded together with farm management record books for smartphones for use at farms; he got his inspiration from the various possibilities of smartphones, continuity of use and convenience of access. Based on this, a management consulting business is under promotion based on the consolidated report of farm management targeting certain farms.

The purpose of this study is to introduce the features of farm management record book Version 3.0.1., which is the process and the final outcome of advancement of features through communication with users on the smartphone farm management record book developed and supplied in 2012, as well as derive user traits and improvement plans.

## **2 Development and Functional Advancement of Smartphone Farm Management Book**

### **2.1 Background of Development**

Park Kye Won (2012) attempted to set the scope of application development based on a preliminary study of demand on the intention of farmers toward the farm management record

book, which targeted individual farms prior to the development of the smartphone farm management record book.

The survey was performed based on details such as a farm's general affairs, recording status of the management record book, record type, recorded details and difficulties, targeting farms under the jurisdiction of North Chungcheong Province. According to the results, most farmers (53.3 percent) said the reason they failed to keep management records because "no need to." Next was "no time (20 percent)," "difficulty in keeping records (13.3 percent)" and "lack of computer programs (13.3 percent). Therefore, we developed an a smartphone application to allow farms to access management records more easily, while the development objective was to make the application easy, comfortable, fun and convenient to use.

### **2.2 Development environment**

The basic environment necessary for the development of a smartphone farm management record book was based on the Android operating system, which is widely used by farms, and has been configured for use in all smartphones.

The functions of the management record book have been simplified for easy use by farms through two consultative meetings with farms to be configured only with Input Basic Info, Management Book, Input Work Log and View Statistics windows.

### **2.3. System configuration**

The objectives of the smartphone farm management record book are to continue steady improvement and development through real-time communication with users after configuration based on the opinions of farmers who are users. Therefore, it has been configured as a system reflecting user opinions as much as possible and the overall outline map is shown in <Figure 1>.

Also, a server was placed to produce data that can be compared after storing the data entered by the farms and utilizing this information. In addition, the system was configured for the purpose of customized farm management consulting and policy material development based on the accumulated data.

### **2.4 Functional Advancement Process**

The smartphone farm management record book "Barobaro"



Figure 24 Smartphone Farm Management Record Book System Overview

가	Participating farm Data server Rural Development Agency Preparation of management records Use of management diagnosis
가	Data storage Data analysis Farmhouse consulting Use of policy data

has implemented sequential functional improvement through seven updates since the service was started Oct. 17, 2012. This started under a strategy to advance functions a little bit at a time after starting simply as decided in two consultative meetings with farmers prior to the development process of the management record book, and is also the result of continuously reflecting user requirements by using the service.

The first update came Nov. 30, 2012, right after the service started, and made a functional improvement to improve program error and receive daily logs as Excel files.

The second update on Dec. 6, 2012, provided a free bulletin menu for farmers to freely post their opinions, and improvement was made in the function not easily seen on certain smartphones depending on font size.

The third update on May 12, 2013, allowed attachment of up to three photos on the daily log by reflecting user suggestions, recording of work hours up to minutes and the new function of checking a detailed list on income/expenditure items in the View Statistics menu. In addition, measures were taken to prevent user inconvenience by adjusting the resolution to newly released smartphones.

The fourth update on July 29, 2013, made corrections to enable batch and direct input of cellular phone information on the address information, while registering customers, adding an asset registration function on depreciation of agricultural machinery and facilities, and creating new functions to print after entering and storing results in educational programs farmers participated in. Also, the function

to enter lots while registering agricultural products was added and utilized in the management book by entering detailed information on the income/expenditure menu. The stages of work by each agricultural product also added the function to delete unnecessary operations and add necessary items. Also, the push notification feature was added to Announcements and Bulletin, menus considered absolutely necessary from the administrator's perspective.

The fifth update on Sept. 16, 2013, changed the date from menu to calendar type while filling out farming daily logs or management books, supplemented use for livestock records such as Korean cattle or honeybee and improved attachment of photographs in the free bulletin. And the feature to send group text messages to customers was implemented per request from farms, while an improvement was made to record both above and below zero temperatures while registering the daily log.

The sixth update was performed on Oct. 23, 2015. As this was the period for updating the parts not modifiable due to the lack of budget for one year in 2014, many parts were improved. The task log section added the task planning feature and one to copy existing input tasks, introduced the multiple selection feature to register many types of tasks at once and reinforced the process of checking management book input after registering the task log to compensate for the weakness of not entering income/expenditure relationship well after only registering the task log. In the management book menu, quantity and unit price input blanks were added, while the payment classification

was also made to identify transaction details at a glance by classifying cash, credit and cards as well as implementing a function to interlock so that the transaction details coming into the text message box could be added to detailed items. In addition, an off-farm income corner was set up to reflect the reality of farming in which off-farm income exceeds that from farming. And the lots entered while registering agricultural and livestock were indicated on the list to avoid confusion by users, while a function to modify cultivation area by year was added. Customer registration

sought to classify sellers and buyers while the education management menu was also improved to allow alarm setting for preregistered education; a search feature for the bulletin was also added. And a new corner on new cultivation technology featured farmers' suggestions. In addition, a function was added to calculate labor cost automatically if the labor cost of that area was preregistered.

The most recent update was performed on Nov. 4, 2015, a correction to an error of the Back button on the task record check window. This made corrections automatically

**Table 1** Updates to Smartphone Farm Management Record Book

Version Info(Update)	Details
ver.3.0.1 (Nov. 4, 2015)	<ul style="list-style-type: none"> <li>• Task Record: Corrected to prevent renewal when returned to list window using Back button from Modify window</li> <li>• Task Log: Ending date also automatically set as starting date if latter is set</li> <li>• Management Book: Addition of function to indicate thousand unit commas on selling quantity and unit prices and another case</li> <li>• Customer Registration: Addition of function to check redundant phone numbers if input directly</li> </ul>
ver.3.0.0 (Oct. 23, 2015)	<ul style="list-style-type: none"> <li>• Farming Daily Log: Addition of task planning feature and task stage multi-selection feature</li> <li>• Addition of feature to input management book right after copying task details and registering task log</li> <li>• Management Book: Addition of quantity and unit price input blank, payment classification (cash, credit and card) and text message box interlock feature</li> <li>• New Establishment of Off-Farming Income: Wages, transfer, lease, consigned work, pension, service and others</li> <li>• Management Statistics: Addition of income type/customer/payment classification categories</li> <li>• Agricultural/Livestock Product Registration: Addition of lot address indication feature and function to modify cultivation area by year</li> <li>• Asset Registration: Indication of service life on list and addition of fruit tree on asset</li> <li>• Customer Registration: Addition of seller/buyer classification</li> <li>• Education Management: Addition of alarm feature on education schedule registered in advance</li> <li>• Newly established cultivation technology bulletin</li> <li>• Added bulletin search feature</li> <li>• New Labor Cost Setup Feature Menu: Automatic calculation after registering on management book</li> </ul>
ver.2.0.0 (Sept. 16, 2013)	<ul style="list-style-type: none"> <li>• Configuration of calendar type farm management record book</li> <li>• Function to enter livestock products such as Korean cattle, honeybee keeping and laying hens</li> <li>• Addition of feature to register photographs in free bulletin</li> <li>• Implementation of sending group text messages to customers</li> <li>• Addition of feature to enter below zero/above zero classification while registering on task log</li> </ul>
ver.1.6.0 (July 29, 2013)	<ul style="list-style-type: none"> <li>• Management Book: Addition of customer designation and photo attachment</li> <li>• Task Log: Addition of weather information and memo input</li> <li>• Statistics: Modify and delete features by list item</li> <li>• See More               <ul style="list-style-type: none"> <li>- Customer Registration: Batch and direct input of cellular phone directory information</li> <li>- Asset Registration: Implementing function to input by classifying agricultural machinery/facility and function to input sharing ratio</li> <li>- Education Information Registration: Function to input education information and attach photographs</li> <li>- Agricultural Product Registration                   <ul style="list-style-type: none"> <li>· Addition of lot input, input on detailed information of income/expenditure on concerned agricultural product</li> </ul> </li> <li>- Addition of announcements and bulletin push notification feature</li> <li>- Data Backup: Management book and log</li> </ul> </li> </ul>

**(Continued)** Updates to Smartphone Farm Management Record Book

Date	Details
ver.1.5.0 (May 2, 2013)	<ul style="list-style-type: none"> <li>• Task Log: Implemented function to attach photographs and another to input work hours as minute units</li> <li>• Statistics: Function to check detailed list on income/expenditure menu</li> <li>• See More: Addition of automatic conversion feature of baro point by year</li> </ul>
ver.1.4.0 (Dec. 6, 2012)	<ul style="list-style-type: none"> <li>• Addition of free bulletin board</li> </ul>
ver.1.3.0 (Nov. 30, 2012.)	<ul style="list-style-type: none"> <li>• Addition of function to save detailed filed out on task log as Excel file through registered email</li> <li>• Able to input work hours by classifying staff and gender in task log</li> <li>• Assignment of function to write comments on bulletin and suggestions</li> </ul>

set as the starting date if the latter was set at the task log and the management book performed an update to indicate thousand unit commas on selling quantities and unit prices.

**3 Main Functions of Smartphone Farm Management Record Book**

The smartphone farm management record book, which started service in 2012, has undergone seven updates, while the main screen is configured as four screens for Farming Daily Log, Task Record, Management Statistics and See More.


**3.1 See More**

First of all, the See More menu is configured as 14 sub-menus for checking user information and configuring user environment. The 14 are My Page, Agricultural/Livestock Product Registration, Asset Registration, Customer Registration, Education Management, Notifications, Suggestions, Free Bulletin, Cultivation Technology, Backup of Data, Help Data, Labor Cost Settings and Other Settings. Each sub-menu's functions in the See More menu are shown in <Figure 2>. Registration of agriculture and livestock and that of assets must be done first to utilize the farm management record book.

	<ul style="list-style-type: none"> <li>• My Page: Check and modify user info / Check score and priority of management performance</li> <li>• Agricultural Product Registration: Registration and modification of cultivated agricultural product/addition and deletion of task stage</li> <li>• Asset Registration: Setup of sharing ratio by agricultural machinery, facility, fruit tree and crop</li> <li>• Customer Registration: Registration and modification of seller/buyer, transmission of group message</li> <li>• Education Management: Registration of education performance and schedule</li> <li>• Notifications: Registration and confirmation of administrator message followed by operation of management record book</li> <li>• Suggestions: Registration of inconveniences and improvements duringn use</li> <li>• Free Bulletin: Registration of user content</li> <li>• Cultivation Technology: Introduction of new cultivation technology and registration of agricultural product information</li> <li>• Data Backup: Input management book, task log and education material in Excel file</li> <li>• Help Data: User manual</li> <li>• Labor Cost Settings: Input unit price per hour in employment labor cost in user's region</li> <li>• Other Settings: Assignment of status of receiving push alarm for maintaining log-in and bulletin notification</li> </ul>
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**Figure 2** Main Details of “See More” Menu in Management Record Book

:	Inquiries: Park Kye Won, Management Information Team, Crop Research Department Farming Daily Log Task Record Management Statistics See More
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- Task Log
  - Function to register self- and employed labor force use information, weather information or detailed tasks after selecting task stage by each crop
  - Move to cost registration suggestion screen after entering task information
  - Function to register two or more multiple tasks
  - Function to attach photographs according to task
  - Function to copy and paste on same task
  - Assignment of function to set up plans through annual duplication of task list
- Management Book
  - Function to register selling (purchase) quantity, unit price, selling amount input feature, cash, card and credit
  - Function to register detailed items on sales
  - Function to register two or more multiple tasks
  - Function to copy and paste same tasks
  - Function to attach photos related to sale and purchase
  - Function to check latest transaction details of income/expenditure
- Off-Farm Income
  - Wage, transfer and lease income, consigned work commission, pension and service income

Figure 3 Main Details of Farming Daily Log Menu In Management Record Book

/ / / / / /	List of Plans Farming Daily Log Input Lease Income Sun/Mon/Tue/Wed/Thu/Fri/Sat Lease Income Farming Daily Log Task Record Management Statistics See More
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3.2 Farming Daily Log

This is the main input feature of the smartphone farm management record book. Its calendar type input screen allows registration of task log/plan, management book and off-farm income. The main functions of this log are shown in <Figure 3>.

3.3 Main Functions of Task Record

The task record menu is a corner configured to modify when necessary after checking the task details entered by users in a clearly organized way as shown in <Figure 4>. This menu can check task details by year and crop as a menu used while checking what work was recently done on each crop.



Figure 4 Task Record

2015 ( )	Task Record 2015 Strawberry (Semiforcing) Farming Daily Log Task Record Management Statistics See More
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Figure 5 Management Statistics

2015	Management Statistics Total Income 2015 Total Agricultural/Livestock Products Customer Payment Classification Income Total Income Total Expenditures Sales of Principal Products Lease Income Farming Daily Log Task Record Management Statistics See More
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### 3.4 Main Functions of Management Statistics Menu

Management statistics can check the income of a farm and each crop based on entered transaction details of income/expenditure; such analysis can also be simply inquired by year. Another function is assigning detailed content on sales and expenditure items to correct them in case of error. And income analysis has been assigned a function to check details and make correction by crop and customer and according to payment classification.

## 4 Users of Farm Management Record Book for Smartphones

### 4.1 User Traits

Since the start of the app for the smartphone farm management record book in October 2012, the number of people who downloaded the app as of October 2015 reached 4,430 as shown in <Table 2>.

By region, North Chungcheong Province had the most

who downloaded the app with 897, or 20.2 percent. Next was North Gyeongsang Province with 12.9 percent and Gyeonggi Province with 12 percent. North Chungcheong had the most users because the app was developed by the Chungcheongbuk-Do Agricultural Research & Extension Service and saw more publicity in the province than elsewhere.

Users of the smartphone farm management record book by age group are shown in <Table 3>. The ratio of users in their 40s was the highest with 35.4 percent, followed by that of those in their 50s with 30.6 percent. The ratio of senior citizens age 60 or older also took up a bigger share than that of those age 20 or younger with 8.1 percent. Such tendency could be considered a natural phenomenon as the ages of people using smartphones rises, though the ratio of farmers age of 20 or younger is low.

### 4.2 Difference in Use Level by Region and Age Group

For use as a possible basis for compensation while also an

Table 2 Users of Farm Management Record Book App for Smartphones by Region

Classification	Gangwon	Gyeonggi	Gyeongnam	Gyeongbuk	Metropolitan City	Jeonnam	Jeonbuk	Jeju	Chungnam	Chungbuk	Total
Frequency	279	532	413	573	454	347	326	295	314	897	4,430
Ratio	6.3	12.0	9.3	12.9	10.2	7.8	7.4	6.7	7.1	20.2	100.0

Table 3 Users of Farm Management Record Book App for Smartphones by Age Group

Classification	Teens	20s	30s	40s	50s	60s	70s	Total
Frequency	112	186	850	1,570	1,355	327	30	4,430
Ratio	2.5	4.2	19.2	35.4	30.6	7.4	0.7	100.0

**Table 4** Difference in Level of Usage by Region

Region	Average	Standard Deviation	F Value	Significant Probability
Metropolitan City	55.56 <sup>a</sup>	224.5367	17.1***	0.000
Gyeonggi Province	73.94 <sup>a</sup>	208.7552		
S. Jeolla Province	87.76 <sup>a</sup>	210.4744		
S. Gyeongsang Province	100.90 <sup>a</sup>	277.4823		
N. Gyeongsang Province	128.28 <sup>a</sup>	379.5025		
N. Jeolla Province	128.48 <sup>a</sup>	508.8201		
Gangwon Province	131.76 <sup>a</sup>	536.5863		
Jeju Island	135.20 <sup>a</sup>	516.4479		
S. Chungcheong Province	163.92 <sup>a</sup>	592.7136		
N. Chungcheong Province	397.50 <sup>b</sup>	1200.6078		

\*\*\* p<.001

**Table 5** Difference in Level of Usage by Age Group

Region	Average	Standard deviation	F Value	Significant probability
Teens or younger	120.09	417.85603	2.68	0.13
20s	45.44	77.81229		
30s	132.72	588.15480		
40s	164.56	760.59014		
50s	190.73	597.38351		
60s	233.66	713.11229		
70s or older	321.33	610.65670		

index to find the level of usage by users at the time of developing the smartphone farm management record book, five points were granted for one record in a management record book.

This point can be used as an index for the usage level of a farm management record book at the one that goes up five points at a time if recorded in all menus including management book, task log and crop registration. The scores are those accumulated over the past ten months, while the places with the lowest scores are metropolitan city, Gyeonggi and South Jeolla province subscribers, while the average of other areas except for North Chungcheong showed little difference.

As a result of analyzing variance to test difference in usage by region, North Chungcheong was shown as much different from other areas.

The reason the province had a higher level of usage than other areas is because of more publicity and education here than elsewhere given that the app was been developed in

the area. Another factor was continuous management by paying compensation of 20,000 won per month for ten months by selecting 90 farms for empirical testing on the farm management record book.

As a result of testing the difference in level of usage of the smartphone farm record management book by age group, those in their 70s or older had the highest score of 321.33 points and next came those in their 60s with 233.66. So the level of usage tended to grow as the age group got higher, but no significant difference was seen in each age group.

#### 4.3 Trend of Usage over Last Six Months

A phone survey was held Nov. 1-10 on 600 people who downloaded the smartphone farm management record book from May 1 to Oct. 30. The responses of the 100 people who took part in the survey are shown in <Table 6>.



**Table 6** Results of Phone Survey on App Download Users over Last Six Months

Age	Frequency(No. of users)	Ratio(%)	Region	Frequency(No. of users)	Ratio(%)
50s	49	44.5	N. Chungcheong	17	15.5
40s	28	25.5	S. Gyeongsang	16	14.5
30s	18	16.4	N. Gyeongsang	15	13.6
60s	11	10.0	Gyeonggi	12	10.9
20s or younger	4	3.6	Metropolitan City	11	10.0
Total	110	100.0	N. Jeolla	9	8.2
			N. Jeolla	9	8.2
Status	Frequency(No. of users)	Ratio(%)	Jeju Island	8	7.3
Farmer	80	72.7	S. Chungcheong	8	7.3
Non-farmer	30	27.3	Gangwon	5	4.5
Total	110	100.0	Total	110	100.0

**Table 7** Difficulties in Using Smartphone Farm Management Record Book

Difficulty	Frequency(No. of users)	Ratio(%)
Input and correction difficult.	9	10.0
Screen and text size too small	2	2.2
Problems with knowing how to use smartphone well	11	12.2
No difficulty	29	32.2
Categorizing task process as difficult	17	18.9
Other	22	24.4
Total	90	100

By age group, most who took part in the survey were in their 50s, followed by those in their 40s and 30s in that order. By region, most were from (in order) North Chungcheong, South Gyeongsang, North Gyeongsang and Gyeonggi provinces, while non-farmers took up 27.3 percent of all respondents. On why the non-farmers downloaded the farm management record book, “preparing to become a farmer” was the most common response with 68.8 percent, and in a distant second was “gathering information related to work” with 15.6 percent. Those who said “preparing the farming daily log or for reference in relation to running a weekend farm” accounted for 12.5 percent.

On difficulties felt in using the smartphone farm management record book, “using well without inconvenience” saw the highest response with 32.2 percent, followed by “categorizing the task process is difficult” with 18.9 percent, “don’t know how to use a smartphone well” 12.2 per-

cent and “difficult to input and modify data” 10 percent. The last two responses were apparently caused by lack of education on the developed app, and preparing training for each zone is urgent to promote the use of the smartphone farm management record book. The response “categorizing the task process is difficult” makes unlimited revision a difficult issue due to being an app moving based on the server, though users wish to categorize the necessary task process themselves while using the management record book, as well as because of the nature of a program trying to unify analysis data through aggregation. To ease such difficulty, the task processes desired by users are settled by taking action to be available to all users after being registered by an administrator.

A survey on raising the use of the smartphone farm management record book found the most common response being “education on using the smartphone farm management record book is necessary” with 25.8 percent. Next was

**Table 8** Things Necessary for Promoting Use of Smartphone Farm Management Record Book

Necessary Item	Frequency(No. of users)	Ratio(%)
Education on smartphone use	39	25.8
Subsidies	8	5.3
Opening webpage	11	7.3
Prompt response to questions	6	4.0
Customized management consulting	14	9.3
Easy printing	17	11.3
None	27	17.9
Farming data	8	5.3
Other	21	13.9
Total	151	100.0

“easy printing on recorded details” with 11.3 percent and third was “management consulting on recorded details is necessary” with 9.3 percent.

As for other opinions for spreading the smartphone farm management record book, they included boosting customer management, comparison function on the same crop, self-regulated input function on detailed items and improvement of publicity for increasing the number of users.

## 5 Conclusion

Many people are unable to abandon their suspicion of the effectiveness or utility of the smartphone farm management record book at farms. But as most farms are using smartphones, now is the time to take interest in the new farm management record book and account utilization plan immediately usable by farms on site through more publicity, investment and education.

The smartphone farm management record book offers sufficient possibilities for a number of reasons. First, smartphones have become essential products that people cannot do without in life, and this can considerably improve accessibility to management records by farmers. Second, people in their 40s and 50s form the main age groups using the app, while the level of satisfaction also tends to be higher than those of other age groups. Thus this means a high possibility of the app's spread since these people have little repulsion toward the smartphone farm management record book. Third, the app is ideal for use at farms because calculation and analysis of the management record data are more prompt, accurate and rational than other management record books as proven so far. So the

smartphone farm management record book stands to be steadily accepted by farms even in the future.

On the other hand, many instances of discontinuance has occurred after utilizing the record book despite such advantages. One reason might be that self-diagnosis of farm management conditions is roughly possible even without a management record book due to the country's small farming structure, while another reason might be not having consulted a concerned agency on the management record book that has been recorded.

To promote the smartphone farm management record book now, related education must be a priority. And considering the circumstances of Korean agriculture, which is gradually becoming specialized and large-scale, the management records of farms and accounting will clearly become essential requirements. So stronger will is needed toward farm management consulting and better participation by related agencies is a must.

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