

**Evaluation of farm client participation in  
Michigan State University telfarm program**

by

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## ABSTRACT

The TelFarm program is a Farm Management Information System (FMIS) operated by Michigan State University since 1963. It provides farm financial analysis, check-in and income tax estimation, depreciation scheduling, and routine recordkeeping support services to farm producers. Farm financial analysis is a primary service and provides publicly accessible industry comparison data for producer benchmarking.

Enrollment in TelFarm has continued to decline since the 1980's. Farm members that do participate in services rarely utilize the entirety of their subscriptions. The goal of this research project is to better understand clientele participation, service needs and expectations, and determine if any areas of improvement to TelFarm can be identified. The research method used was a survey conducted online and via phone interviews with active and non-active members of the TelFarm program.

Results indicate that beginning farmers are less likely to enroll in TelFarm compared to established farmers. Fruit farms also indicated a strong aversion to membership compared to all other farm types. Recordkeeping services aimed at ensuring accuracy and creation of records for taxes is the primary expectation of members. Tax estimation and check-in meetings were ranked lowest of all services and viewed as a duplication of recordkeeping services. Beef, dairy, and field crop farms are more likely to participate in a farm financial analysis, but importance of industry comparisons for benchmarking was not a high expectation of any farm type. Member preference was to focus on profitability and obtaining an updated balance sheet.

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## CHAPTER I: INTRODUCTION

The TelFarm program was founded in 1963 as the primary Farm Management Information System for Michigan. TelFarm stands for “Today's Electronic Farm Records for Management”. It has been housed and operated by Michigan State University (MSU) in partnership with MSU Extension staff since inception; and provides services to Michigan farm producers, including farm financial analysis, check-in and income tax estimation, depreciation scheduling, and routine, monthly recordkeeping review and support. However, subscriptions have continued to decline for almost a 40-year period, and MSU administration is concerned about a noticeable lack of participation in services for current subscribers.

The TelFarm program currently has over 200 individual subscribers who pay the full annual subscription rate of \$550, that provides access to all available services. Services include recordkeeping support, tax estimation and farm financial analysis. However, only approximately 50% of participants choose to fully utilize services despite continued payment. TelFarm would like to better understand clientele’s participation in services, expectations associated with each service area, if service areas are meeting clientele needs, and potential areas of improvement.

A starting place for answering this question is the last evaluation of the MSU TelFarm program in 1993. At that time, subscriptions had fallen by 46% over a 12-year period to a membership level of 735 farm clients as compared to the program’s height of 1,491 paid subscribers in 1980. By fall of 2021, subscriptions in MSU TelFarm had fallen to 242 active farm members, a decrease in client subscriptions of 67% from the 1993 program evaluation over the 28-year period. In comparison to the program height of 1980,

MSU TelFarm has experienced an almost 84% enrollment reduction over the 41-year period (Peterson et al. 1993). Review of the U.S. Census of Agriculture report (USDA 2017) indicates that the loss rates are not correlated to attrition of actual farm numbers. During a similar time period, number of farms in Michigan declined 11% from 53,519 in 1997 to 47,641 farms in 2017 (USDA 2017), following a boom from 1997 through 2007 when farm numbers rose to 56,014 farms in the state. The drop in farm numbers from 2007 to 2017 is approximately 15% and well below the rate of decline seen by TelFarm.

During the 1993 TelFarm evaluation when enrollment was less than 50% of subscriptions in 1980, researchers outlined that a decision needed to be made to revitalize or terminate the TelFarm program. Despite efforts to revitalize the program, subscriptions continued to decline and active participation in available services became inconsistent.

TelFarm began as a completely paper based, mail-in system and at its subscription height in 1980, all subscribers utilized this method. In 1983, the MicroTel computerized program was offered as an alternative method of tracking and sending records for review by program staff. By the 1993 TelFarm review, more than 54% of subscribers still used the paper mail-in service. Today, paper mail-in method accounts for only 31 subscriptions or less than 13% of total clientele.

Due to an inability to maintain or update the software, MicroTel was replaced in 2015 with PcMars. The PcMars software is a farm-based recordkeeping system developed by Iowa farm producers in 1985 (PcMars 2019). Today, PcMars is supported by Iowa State University and offers a specific chart of accounts for several states, including Michigan. The adoption of PcMars as a replacement for MicroTel resulted in a new learning curve for all computer-based TelFarm clients and has been a notable source of frustration. Concerns



over having to learn a new program that included a new chart of accounts, more options than were available in MicroTel, and a requirement for better understanding of accounting principles have all been suspected causes of some loss of subscriptions.

### **1.1 Evaluation of Market Competition**

Adding pressure to the TelFarm program is the existence of other Farm Management Information Systems (FMISs) within Michigan. GreenStone Farm Credit Services advertises similar support services related to recordkeeping and farm financial analysis. They utilize QuickBooks Online as their main recordkeeping system, which is a widely recognized and popular accounting software in the business sector, including those in the agricultural industry. In addition, GreenStone also offers clients IRS Income Tax filing services, which is not currently offered through MSU's TelFarm program (GreenStone Farm Credit Services 2021). This additional service and "one-stop-shop" array of services places GreenStone Farm Credit Services as a primary competitor in the options of FMISs. This competition is noteworthy as part of the background to a potential reason for a lack of participation in MSU's TelFarm program, despite the university's insistence that they are not interested in competing with firms in the industry. TelFarm is not considered a "for profit" service and bases subscription fees solely on operational costs, often still requiring subsidized funding from MSU to meet program needs.

The MSU TelFarm program has begun a pilot program to offer QuickBooks Desktop as an additional software option to participants. The pilot program has enrolled 12 farms who either previously used QuickBooks prior to joining the program or have a preference towards using that specific software. The additional support of QuickBooks Desktop has also led to future plans of developing support for QuickBooks Online. Despite

the additions of these two software programs in the current and future line-up of supported recordkeeping systems, the TelFarm program has stated that it will continue to primarily support PcMars. This is based on rationale that QuickBooks was not designed for use by farm businesses and requires substantial effort to use correctly compared to PcMars. It is unclear how the decision to focus primarily on PcMars will impact future enrollment.

## **1.2 Personnel Challenges**

There is also a concern about involvement and time justification to the MSU TelFarm program by MSU Extension staff (Michigan State University 2017). TelFarm only has two full-time assigned staff and relies almost exclusively on educators to be “the face” of the program with farm clients. As described by Peterson et al. (1993), educators were referred to as District Farm Management Extension Agents and responsible for promotion and maintenance of the program despite increasing job demands and a limited priority towards TelFarm. In 2021, now called Farm Business Management Educators, these individuals are still expected to be responsible for promotion and maintenance of the TelFarm program. Tasks include correcting farm record errors, conducting tax management strategy planning, and farm-based financial analysis meetings. MSU Extension administrative personnel have acknowledged that full-time devotion to maintaining TelFarm runs counter to educational programming and job performance demands required of educators. Position descriptions for Farm Business Management educators only outline regularly completing farm-based analysis, including assisting farmers enrolled in MSU’s TelFarm program to contribute records for state benchmarking analysis (Michigan State University Human Resources 2021). Administrative preference is that one-on-one engagement with financial records outside of analysis meetings should focus on newer

clients to facilitate “educational learning.” Frequent software or record error corrections are expected to be directed to MSU TelFarm staff. A common discussion topic among Extension educators and TelFarm personnel is the expected involvement of educators in promotion of the program and retention of subscribers. Many of the TelFarm meetings are held during the same time of year that a substantial amount of educational programming is conducted by Extension. One of the aims of the research was to determine if personnel limitations are having a significant impact on delivery of services and overall participation by TelFarm subscribers.

This thesis evaluates “what influences client participation in MSU TelFarm services?” In order to understand what influences client participation, a better understanding of client expectations and needs related to service areas must be achieved. The perception and value associated with how TelFarm delivers these services is a critical component that must be included in the research. The source of this information lies with subscribers of the TelFarm program, past and present, and where data must be acquired.

An analysis of service options, or competitors, within the agriculture market is also needed along with impacts of personnel challenges. If similar services are being offered, understanding different competing programs can provide insight into whether promotion, access to technical support, or personnel with expertise are components influencing client participation in MSU TelFarm.

The next chapter provides a review of relevant literature, possible behavior theories outlining participation in TelFarm services, followed by the methods used to survey current and past subscribers, results from the survey, and recommendations going forward.

## CHAPTER II: LITERATURE REVIEW

Farm Management Information Systems (FMISs) have been widely used by farm managers for decades with the most common types designed for farm financial management. These can include programs that are computer-based, such as PcMars or FINPACK (FINPACK 2022), or even phone app-based, such as Agworld (Agworld 2022). Each type of FMIS is implemented with similar goals of helping managers make well informed decisions. The effectiveness of each type of FMIS relies on its ability to meet producer needs and provide quality information in a timely manner to impact decision making. Technology advances have made tracking and utilizing information more easily accessible and even usable in real-time. These advancements have led to the creation of new types of FMISs, which have placed pressure on existing applications to re-evaluate whether their current model remains relevant to meeting producer needs.

Tummers et al. (2018) outlined a method-oriented approach to reviewing FMISs and how to consider properly designing a software-based system. The authors describe that to develop an FMIS it is important to design a proper software architecture. This includes using what they refer to as reference architectures, which are generic and help design more specific software architectures for the intended FMIS use. In order for a FMIS to be successful, it has to follow a basic structure, which is where “reference architectures” become important and are outlined as the framework of addressing generic obstacles. The article highlights that while this is important, there are currently no complete reference architectures available for use across FMISs. Each agricultural domain has its own needs and requirements for an FMIS, with requirements being similar for some domains and uniquely different for other domains. This first shortfall leads into a second outlined by the

authors, in that if FMISs were to follow such an architecture, it would require a broader scope beyond simply focusing on FMISs alone.

Hilkensa et al. (2018) provides a theory-oriented discussion on the relationship between farmers and their financial advisors. The authors highlight that most studies have focused on how advisors can facilitate changes in practices related to agricultural production, while studies focused on how advisors support financial management are limited. They outline that typically motivations for choosing banks, type of advisors producers draw on, and the relationship between producers' contact with an advisory organization is about financial management. A study performed by the authors focused on an in-depth review of where producers go for advice, how producers engage with advisors, the type of advice received from advisors, and what shapes their relationships. Findings from their study reveal that engagement with advisors and the type of advice sought has a lot to do with expectations, attitudes, and practices implemented by producers in financial management. If producers are not used to working with financial information, which can include budgets and decision-making tools, they can find them difficult to understand and struggle to value their use. The "passive attitude" towards financial management that is considered part of a producer's identity also creates difficulty in engaging with advisors. For example, the effectiveness of interactions also depended on the skills of advisors to develop the right language, which was often too technical from the farmer's perspective. The sensitive nature of financial information also requires a certain level of trust that must be developed, which can be hindered by poor interactions with advisors. Producers also are heavily influenced by those advisors who hold the most power over their ability to continue operating their farm business. Specifically, the study highlights that "bankers' authority"

often

drives the level of discussion and need for advice that producers will seek. It can hinder the producer's ability to effectively learn and adopt new practices around financial management, because of the high level of need to follow the bank's advice and ensure their needs are met. The authors acknowledge a limitation of their study is that participants were selected on the basis of their role in financial decision-making, their financial stake in the farm and that dairy farming was their main business. Additional gaps that could be filled would be to review a similar study for other types of production agriculture. Suggestions for Michigan would be fruit, vegetables, field crops, swine, and beef as other primary types of agriculture.

Fountas et al. (2015) reviewed advancements in Farm Management Information Systems (FMISs) from academic and commercial viewpoints. They highlight that agriculture has entered a new era in which the key to success is access to timely information and elaborate decision-making. The key focus is whether the two viewpoints are meeting the needs of farm managers to make those decisions. They outline that historically, mining the farm's data for useful information has been time consuming and difficult to obtain or distribute which has hindered its ability to be used in "enhanced decision-making." The benefit of using a FMIS could depend on the level of the user's experience. In particular, younger farmers with a relative lack of farming experience would benefit from using an FMIS. A noticeable gap is that there is a lot of work needed to connect the academic research to the commercial uses. The authors note this would require extensive investment and cooperation from both commercial developers and academia. Areas of future development involving both parties should focus on improvements in

technology, adoption motives, hindrances, specific new functionalities, and greater emphasis on software design governed by usability and human-computer interaction.

The situation being faced by MSU TelFarm is not unique to the state of Michigan. An external review of the Farm Management Information System (FMIS) for the University of Kentucky offered insight into their handling of similar circumstances to those faced by TelFarm (Cagley et al. 2006). The review outlined interviews conducted with two groups, cooperators and the Department of Agricultural Economics at University of Kentucky, who were identified as the “two stakeholders that must come to a consensus.” The review focused on program evaluation and methods of continuation given difficulties with its existing structure and environment. They outlined key areas or challenges within the program mirroring those of MSU’s TelFarm:

- 1) Stakeholder views of field staff expectations and job duties are distinctly different between cooperators, educators, and campus personnel.
- 2) Financial data is not provided in a consistent and timely manner from cooperators, creating concerns about accuracy and usability for benchmarking against similar farm operations.
- 3) Workload balance of field staff is a concern with a disproportionate number of cooperators per specialist and an inability to manage commitments to Extension responsibilities.
- 4) A restructuring and reallocation of financial support is needed to achieve a more equitable arrangement between stakeholders and those providing input towards program direction.

- 5) State reports are released late and considered unusable to university personnel, cooperators, administration, and the farm community at large.

Recommendations are for stakeholders to address current challenges by consideration of three alternatives: 1) dismantling the program, 2) leaving the program as is, or, 3) make major structure changes to address each area of concern. The review acknowledges that major structural changes carry no guarantee of success, but it provides a direction for discussion of how to address challenge items. Several key recommendations were developed for consideration of the stakeholders.

- 1) Stakeholders need to provide input on feasibility of specialists to process farm management data and conduct extension meetings.
- 2) A new data collection/analysis process needs to be implemented that is less labor intensive, focusing on organization, systemization, and utilizing well-trained support staff.
- 3) The number of cooperators per field staff should be comparable and embraced with the same considerations as private business.
- 4) Field staff compensation should be based on performance relative to expectations and may also be a function of current market situation. This notes that field staff employees are required to have an M.S. degree and there is much competition for their skills.
- 5) Tax preparation may be dropped from program offerings or policies must be established for existing field staff who prepare taxes for cooperators and wish to continue.



The final literary review of this project is of the MSU TelFarm program itself. TelFarm, or also more technically referred to as, “the Michigan Farm Management Information System” was examined by members of MSU, MSU Extension, and MSU TelFarm (Peterson et al. 1993). The review outlines four key issues:

- 1) Increasing the effectiveness, efficiency, and profitability of Michigan agricultural producers through improved farm management information systems (FMIS);
- 2) Determining the future directions for the TelFarm farm records program;
- 3) Assuring that the Michigan State University (MSU) College of Agricultural and Natural Resources (CANR) has appropriate farm operations and performance information to support its three missions of teaching, research, and extension;
- 4) Building cooperative relationships with private and other public providers and users of farm management information.

The report acknowledges that the MSU TelFarm program is one of several FMISs that are “university affiliated” across the nation that are struggling to survive. This is despite a recognized need for accurate and reliable farm records or information for improved decision-making by farm managers. The paper raises a concern that “subscriber numbers have fallen dramatically (46% in 12 years), and (TelFarm’s) financial viability is in question” (Peterson et al. 1993, pg 3). The cause of the program’s struggles is widely related to a number of factors happening simultaneously. Authors note that, “increasing access to ‘cheap’ microcomputer-based alternatives, misperceptions of what TelFarm is, and declining priority among Extension field staff for supporting (TelFarm) due to pressures of multiple program objectives” (Peterson et al. 1993, pg 3). They add that while

TelFarm is a public offering of a FMIS, there are private programs that are either declining or only offer minimum support to cooperators.

To better understand the program's situation and outline potential solutions, the study gathered data from "affected parties" and assessed each group's needs from the FMIS. Analysis results indicate that there are three roles of the FMIS:

- 1) Deliver reliable, objective farm performance information to producers, legislators, the legal and regulatory system, organizations in the agricultural support community, and the general public;
- 2) Provide a relevant, consistent database of public agricultural performance information needs accessible to CANR faculty and staff to maintain the quality of teaching, research and extension programs;
- 3) Provide cross-farm comparative data on behalf of entire producer and agribusiness community that fits into the "public good" nature of MSU/CANR.

The same analysis also notes that "delivery mechanisms" hinder the ability to meet such roles and points out that such problems are faced by the TelFarm program. In its current capacity, TelFarm is unable to fulfill the roles as outlined and needs significant changes. Recommendations focus on three key options deemed the most "feasible" for MSU/CANR:

- 1) Revitalize TelFarm;
- 2) Develop a producer FMIS cooperative, separate from but related to the University;
- 3) Maintain an agricultural industry data bank at the University level but withdraw entirely from active involvement in recordkeeping on the farm

The study outlines advantages and disadvantages of each option, before endorsing the revitalization of the TelFarm program. Consideration of the four key issues and roles of a FMIS in Michigan are briefly outlined as the primary factors in pursuing that option. However, much of the endorsement focuses on what may be lost or perceptual impacts of not continuing the TelFarm program.

Noticeable gaps in the analysis and recommendations are how to address concerns of funding, overstressed resources from MSU Extension and/or support from Extension in marketing. Marketing is a noted concern as authors highlight prior efforts having failed in the past, but no recommendations on how to correct past failures are provided. An additional gap is in the analysis of the second option of creating a producer FMIS association. The study identifies several successful examples of this option, but only highlights one advantage and several disadvantages for Michigan's consideration. While the one advantage offers an overview of possible positive aspects, it lacks the same detailed approach in which the revitalization of TelFarm is outlined. It does not provide any specific acknowledgements of how the roles of a FMIS can be completed effectively in this option, despite having highlighted several successful examples earlier in the report.

## CHAPTER III: THEORY

### 3.1 Consumer Preferences and TelFarm Participation

The main theory of the research study is that TelFarm participation functions around consumer preferences. Farooq (2018) defined consumer preferences as a study of psychological, physical, and social actions when individuals buy, use, and dispose of products, services, ideas, and practices. The phrase used to describe this definition is an individual's "buying decision" and understanding the factors that may influence or affect those types of decisions. The buying decisions with regard to the TelFarm program services including recordkeeping support, tax management, and farm financial analysis. In order to better understand client participation towards services offered by TelFarm, it begins with understanding the factors that influence their decision or "buy-in" towards those services.

Farooq (2018) outlined several factors that influence or affect consumer preferences, including: cultural, social, and psychological. Cultural factors can include social class, buyer's culture, and subculture. In the case of TelFarm participants, a buyer's culture can also include the type of farm enterprise that clients are engaged in. For example, the perspective and motivations for a dairy farm may be very different from a field crop or beef operation. While they all share the same goal of achieving farm profitability, how they are inclined to think about reaching that goal can be very different. Understanding these differences may shed some light into whether buying decisions are separated by types of enterprises. There is also the possibility of regional or county differences from within Michigan as well. This subculture of climate and topographical differences have often led to differences in practices, options towards enterprises, and even cultural shifts in approaches to agriculture based on location. It is not uncommon for

producers in Michigan's Upper Peninsula to have operational differences compared to those in the larger, Lower Peninsula. Operation differences are often driven by climate and resource access. Identifying any regional differences is an important aspect of understanding cultural influences towards client participation in TelFarm services.

Jisana (2014) outlines social factors may also be a significant influence towards TelFarm client participation. Social aspects can include family, education, work communities and experience, and even social interaction. Education is considered a driving force of TelFarm's mandate to help producers evaluate performance and make better farm decisions. Understanding if there is a correlation between educational levels of clients and participation in services could indicate the presence of this type of social factor. If an educational influence exists, it would provide some guidance to further evaluate whether services are appropriately scaling towards educational levels or meeting educational expectations of clients.

Farooq (2018) also outlined psychological factors, including perception, motivation and beliefs, and attitudes, that may be the main source of influence towards the buyer decision of TelFarm clients. Motivation and beliefs towards client participation may be attributed to the size and scope of an operation. Farm operations of smaller scale may have less need for services based on the scope of their operation, having smaller inventories and dollars to track year to year. Larger farm operations with higher inventory levels and more dollars being traded in a year may place a higher degree of importance on farm performance analysis and tax management. Another motivation may also be a desire to learn, which could be correlated to current educational levels, but more specifically to the level of management experience that clients possess. Beginning farmers could have

different educational backgrounds or experience that influences their expectations and uses of TelFarm services compared to a seasoned farm manager.

Perception is another important psychological factor that could tie-in to some of the cultural and social aspects mentioned. Larger farm operations could have the perception, and attitude, that because of their previous success, some services are not required. Smaller operations hoping to grow into larger operations may place a higher level of importance on services perceived to help them obtain their business goals.

Studying consumer preferences requires engagement with consumers or statistical data that can provide answers to which factors are influencing their buying decisions (Cloomtrack.com 2021). They can include point of sale data, focus groups, and surveys. In the next section, we'll explore which of these methods are best suited to better understanding the influences behind client participation and their buy-in to TelFarm services.

## CHAPTER IV: METHODS

### 4.1 TelFarm Participation Engagement

To engage with TelFarm participants and collect statistical data, or individual pieces of factual information recorded, on their consumer preferences related to program services, a number of options were considered. These options included a survey, focus groups, and one-on-one interviews.

The first step to deciding on the method of engagement began with identifying the types of data that needed to be collected. A discussion with TelFarm staff was held to outline what information was needed to better understand service participation. For each service area, producer expectations and reasons why they were not being used were immediately recognized. Producer expectations could include not only expectations from TelFarm itself, but also from the service in general regardless of where it is obtained from.

Another topic of consideration was the type of producers that participate and if their answers or expectations are different than those of another type. This led into the development of demographic criteria that would also be included in the data collection. Demographics would include type of farming operations (i.e. field crops, dairy, beef, etc.), size of operation (acres or livestock herd), age of client, beginning or non-beginning farmer, highest level of education, and even county location. A question arose of whether this information was available based on its inclusion in farm financial analysis services. Information was not readily available because TelFarm does not track demographic information on each client.

Demographics also led to a need to identify if there was a difference between active and non-active clients. Additional measurements that could help further understand consumer preferences of TelFarm clientele include:

- 1) Membership status
- 2) Years involved in TelFarm
- 3) Identifying services used
- 4) Reasons leading to a lack of membership renewal

Considering the length of time since the last attempt to understand consumer preferences (Peterson et al. 1993), additional questions were also considered. Specifically, ranking service quality and asking for improvement recommendations from poor quality responses was noted as valuable to TelFarm's understanding of service offerings.

After identifying the data to be collected, identification of contact options for TelFarm clients and resources to communicate directly with them were needed. A discussion with TelFarm staff revealed that mailing addresses, phone numbers, and e-mail addresses were available for both active and non-active subscribers. Resources to conduct interviews or direct focus groups included the author, a TelFarm student worker, and volunteer support staff from MSU Extension county offices. However, county support staff would not be available until December 2021.

#### **4.2 TelFarm Participation Survey & Interviews**

The best method of collecting data from TelFarm clients was determined to be through a survey given available resources and time limitations of personnel. The survey would ask a series of questions grouped into sections. Each section would focus on areas of demographic information, program enrollment, service areas, ranking of services, and



recommendations for improvements. The survey was developed using the Dillman Survey method.

The Dillman Survey method is designed to make surveys easy for respondents to follow and answer (Hoddinott and Bass 1986). The method focuses on consideration of the type and location of instructions, formatting of questions, navigational cues and answer placement to enhance participant responses. The Dillman Survey method is considered a standard option for creations of surveys at many universities, including Kansas State University and Michigan State University. There are three principles outlined by the method: 1) Define a desired navigational path for reading all information presented on each page of the questionnaire; 2) Create visual navigation guides and use them in a consistent way to get respondents to follow the prescribed navigational path and correctly interpret the written information; 3) Develop additional visual navigational guides, the aim of which is to interrupt established navigation behavior and redirect respondents.

Due to the nature of “human research” the finished survey would be sent through the Michigan State University Internal Review Board. This review was part of the Human Research Protection Program to certify that research questions and methods of data collection conformed to program requirements (Michigan State University 2021). A copy of the survey is included in Appendix A.

The survey was distributed through two primary channels. The first channel was through an online service called Qualtrics (Qualtrics 2022) used by many universities. The service is known to many of the producers that participate in Michigan State University programming, so it would not be a new format for many to learn. This service allows data to be collected, including identifying survey respondents so they would not be included in

follow-up survey request notices. The second distribution channel was through telephone interviews conducted by MSU Extension county support staff and the TelFarm student employee. The telephone calls were placed to TelFarm clients who did not respond to the online survey request. These two distribution channels provided for outreach to the full list of active and non-active TelFarm clients, approximately 583 individuals. A fallback option of sending out a hard copy of the survey to all mail addresses was also outlined in case TelFarm's student employees or county support staff were unavailable. All interviews or hard copy surveys were entered in Qualtrics so all data were together in one source for analysis.

#### **4.3 Data Analysis Methods**

Qualtrics provided the analysis system for initial review of responses and determining top response selections to the research questions. This provided a list of top three answer choices for individual service questions and indications of service usage across active and non-active TelFarm participants. A logit model regression was run using Gretl software (Gretl 2022) to obtain a better understanding of the statistical significance of the data. The data was extracted from Qualtrics and converted into a binary set (for example: TelFarm Member, Yes=1, No=0). Output from the logit regression provided the statistical significance and probability of responses from different types of respondents using the demographic information obtained.

#### 4.3.1 Logit Model Regression Equations

The equation used for the likelihood of TelFarm membership logit model

regression was:

$$Y_1 = \beta_0 + \beta_1 FC + \beta_2 D + \beta_3 F + \beta_4 B + \beta_5 V + \beta_6 R + \beta_7 FS250 + \beta_8 FS500 + \beta_9 FS750 \\ + \beta_{10} FS1000 + \beta_{11} FS2000 + \beta_{12} FS2000UP + \beta_{13} LH50 + \beta_{14} LH100 \\ + \beta_{15} LH250 + \beta_{16} LH500 + \beta_{17} LH1000 + \beta_{18} LH1000UP + \beta_{19} EF + \varepsilon$$

where:

$Y_1$  = Membership in TelFarm (Yes = 1, No = 0)

FC = Field Crop Farm

D = Dairy Farm

F = Fruit

B = Beef

V = Vegetable

R = Remaining Farms (non-field crop, dairy, fruit, beef, or vegetable)

FS250 = Farm Acres 0-250

FS500 = Farm Acres 250-500

FS750 = Farm Acres 500-750

FS1000 = Farm Acres 750-1000

FS2000 = Farm Acres 1500-2000

FS2000UP = Farm Acres 2000+

LH50 = Livestock Herd 0-50

LH100 = Livestock Herd 50-100

LH250 = Livestock Herd 100-250

LH500 = Livestock Herd 250-500

LH1000 = Livestock Herd 500-1000

LH1000UP = Livestock Herd 1000+

EF = Established Farmer

The logit model regression equation for use of recordkeeping support services was:

$$Y_2 = \beta_0 + \beta_1 FC + \beta_2 D + \beta_3 F + \beta_4 B + \beta_5 V + \beta_6 R + \beta_7 FS250 + \beta_8 FS500 + \beta_9 FS750 \\ + \beta_{10} FS1000 + \beta_{11} FS2000 + \beta_{12} FS2000UP + \beta_{13} LH50 + \beta_{14} LH100 \\ + \beta_{15} LH250 + \beta_{16} LH500 + \beta_{17} LH1000 + \beta_{18} LH1000UP + \beta_{19} EF + \varepsilon$$

where all variables are as previously defined and

$Y_2$  = Recordkeeping Support (Yes = 1, No = 0)

The logit model regression equation for use of tax estimation and check-in meetings

was:

$$Y_3 = \beta_0 + \beta_1 FC + \beta_2 D + \beta_3 F + \beta_4 B + \beta_5 V + \beta_6 R + \beta_7 FS250 + \beta_8 FS500 \\ + \beta_9 FS750 + \beta_{10} FS1000 + \beta_{11} FS2000 + \beta_{12} FS2000UP + \beta_{13} LH50 \\ + \beta_{14} LH100 + \beta_{15} LH250 + \beta_{16} LH500 + \beta_{17} LH1000 + \beta_{18} LH1000UP \\ + \beta_{19} EF + \varepsilon$$

where all variables are as previously defined and

$Y_3$  = Tax Estimation and Check-In Meetings (Yes = 1, No = 0)

The logit model regression equation for use of farm financial analysis services was:

$$Y_4 = \beta_0 + \beta_1 FC + \beta_2 D + \beta_3 F + \beta_4 B + \beta_5 V + \beta_6 R + \beta_7 FS250 + \beta_8 FS500 \\ + \beta_9 FS750 + \beta_{10} FS1000 + \beta_{11} FS2000 + \beta_{12} FS2000UP + \beta_{13} LH50 \\ + \beta_{14} LH100 + \beta_{15} LH250 + \beta_{16} LH500 + \beta_{17} LH1000 + \beta_{18} LH1000UP \\ + \beta_{19} EF + \varepsilon$$

where all variables are as previously defined and

$Y_4$  = Farm Financial Analysis (Yes = 1, No = 0)

## **CHAPTER V: SURVEY RESPONSES AND DATA ANALYSIS**

### **5.1 Survey Responses**

Surveys were sent to both active and non-active TelFarm participants. Active membership in TelFarm consisted of 242 individuals. Non-active participants started with a list of 341 individuals. After only 14 responses via Qualtrics, a call list was generated and divided among MSU Extension county support staff. Efforts to call non-active participants resulted in identifying 178 disconnected or unreachable phone numbers, reducing the non-active participant list to 177 individuals. Total population for data collection was thereby reduced to 419 potential responses.

Active members of TelFarm provided the highest number of responses at 91 or 38% of population group. Non-active individuals provided an additional 42 responses or 23% of their respective population group. For the total population of 419, an overall response rate of 32% or 133 individual responses was achieved. This sample size provides a 95% confidence level with a 7.04% margin of error (Qualtrics 2022).

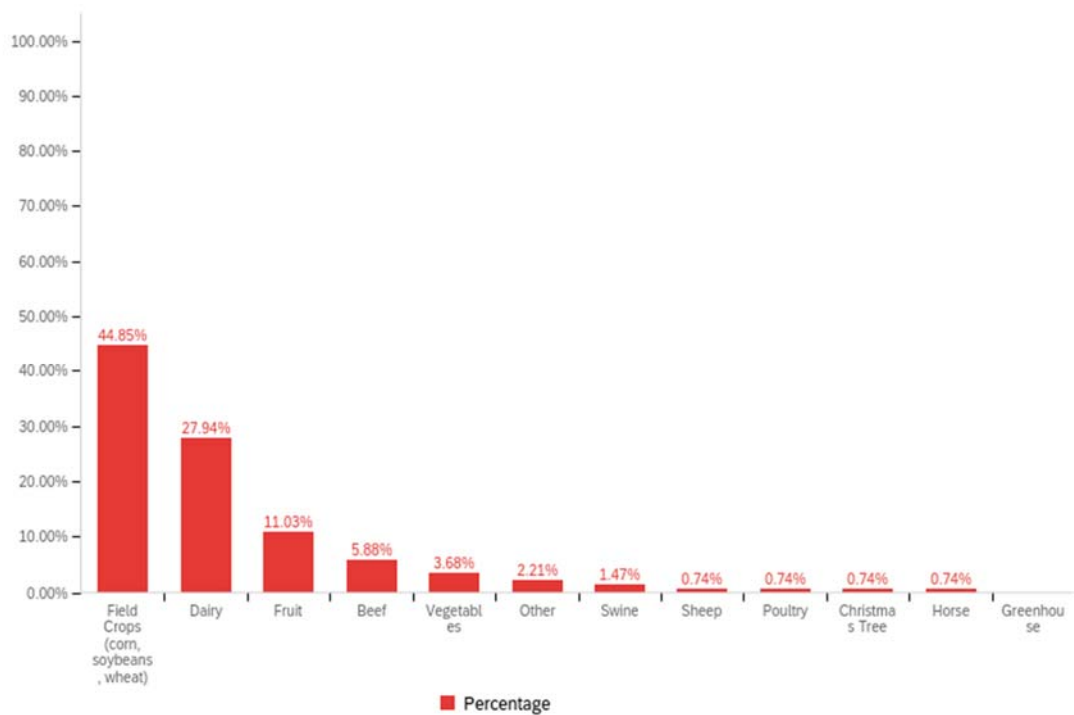
**Table 5.1: TelFarm Survey Population and Responses Summary**

Variables	Count	Percent of Respondents
Active TelFarm Member Population	242	
Non-Active TelFarm Member Population	177	
Total Population	419	
Total Responses	137	
Field Crops	60	43.80%
Dairy	38	27.74%
Fruit	15	10.95%
Beef	8	5.84%
Vegetables	5	3.65%
Remaining Farms ( <i>not beef, dairy, field crops, fruit, or vegetables</i> )	10	7.30%
Acres0_250	13	9.49%
Acres250_500	18	13.14%
Acres500_750	7	5.11%
Acres750_1000	16	11.68%
Acres1000_1500	12	8.76%
Acres1500_2000	1	0.73%
Acres2000UP	2	1.46%
HerdSize0_50	7	5.11%
HerdSize50_100	0	0.00%
HerdSize100_250	8	5.84%
HerdSize250_500	11	8.03%
HerdSize500_1000	15	10.95%
HerdSize1000UP	6	4.38%
Established Farmer	124	90.51%
TelFarm Member	91	66.42%
Non-TelFarm Member	42	30.66%
Use Recordkeeping Support	124	90.51%
Use Tax Estimate	79	57.66%
Use FINAN	90	65.69%

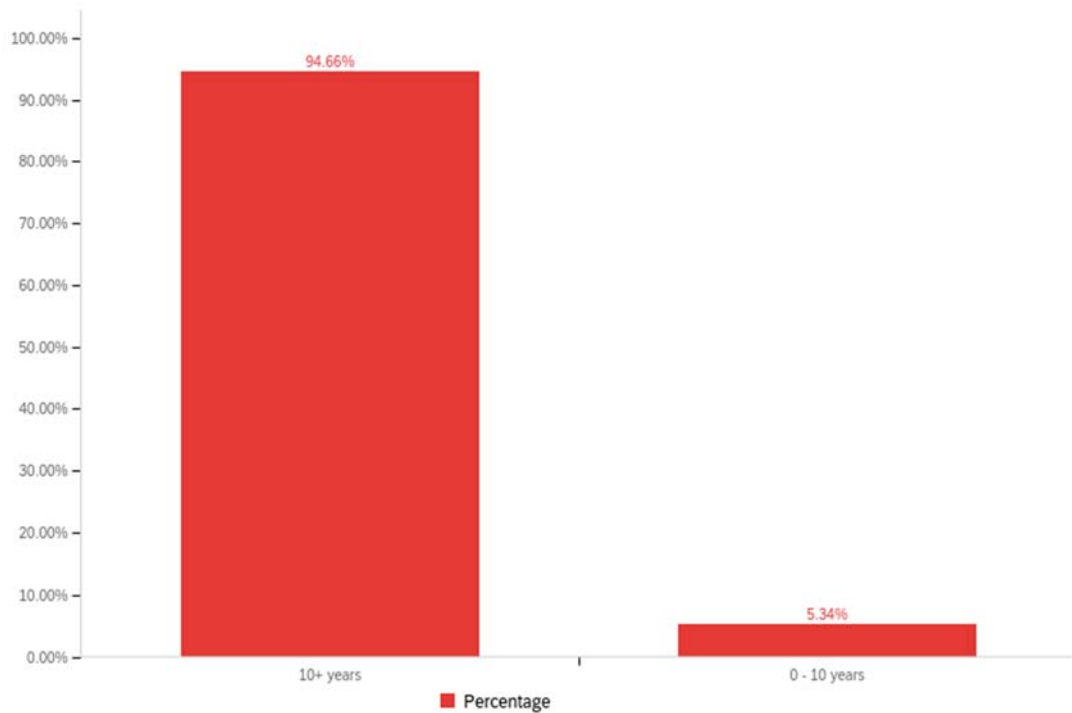
The demographic make-up of farm types responding were primarily field crops and dairy at 72% (Figure 1). Field crop farms made up the largest segment at 44.85% and dairy farms the second largest at 27.94%. Fruit farms were third at 11.03% and beef farms were fourth at 5.88%. The vast majority of respondents were also established farmers, with very few beginning farmers responding. For purposes of this study, beginning farmers are

categorized as individuals with less than 10 years of farm management experience. Approximately 94.66% of respondents indicated management experience of a farm business at 10 years or greater (Figure 2). Note: The percentage of established farmers may be higher as seven respondents did not indicate their level of management experience when completing the survey.

**Figure 5.1: Type of Farm Owned or Operated by Respondent**



**Figure 5.2: Respondents Years of Experience Managing a Farm Business**



## 5.2 Data Analysis

The response data was organized around three main areas: *use of TelFarm services*, *expectations of services*, and *reasons why services are not used*. Demographic information was then reviewed to determine if differences in responses for different types of respondent groups could be identified. Groups reviewed included: active versus non-active, farm type, size of farm, and beginning versus established farmers. Farm types included all farms, all crops, all livestock, field crops, dairy, non-field crops, non-dairy farms and all farms not listed as field crops or dairy. Farm sizes for crops consisted of acreages in a range of 0-250, 250-500, 500-749, 750-1,000, 1,000-1,500, 1,500-2,000 and 2,000 or more. Farm sizes for livestock were based on head per herd and consisted of ranges from 0-50, 50-100, 100-250, 250-500, 500-1000, and 1,000 or more. Data analysis of farm types included not just type, but also by the low 50% or high 50% of acres and low 50% or high 50% of livestock herds.

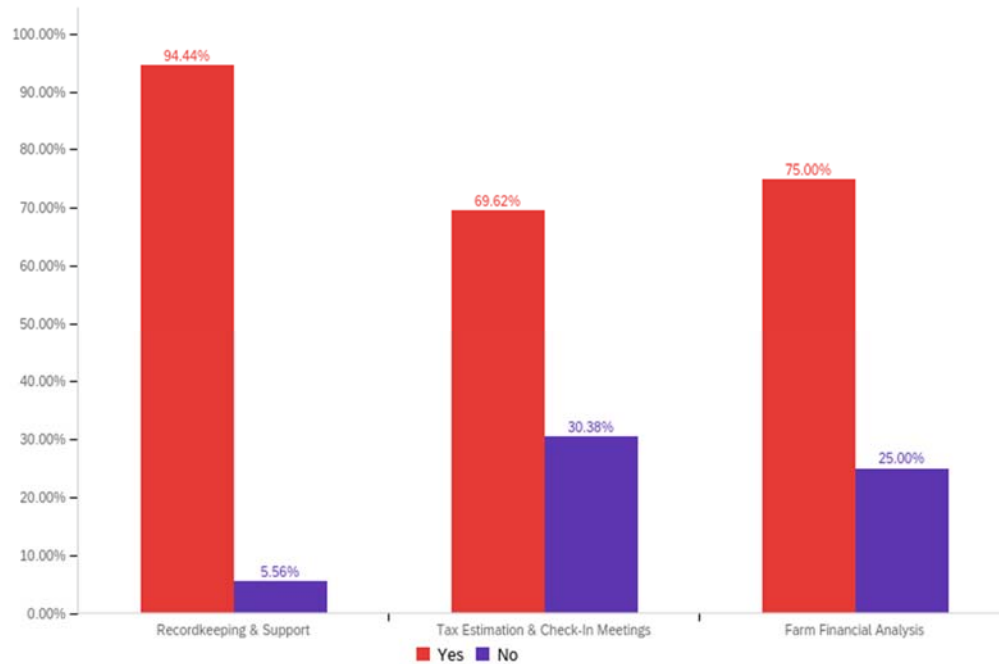


The low 50% for field crop producers fell between 0-749 acres while the high 50% fell between 750 acres or more. The low 50% of livestock herds fell between 0-500 head per herd while the high 50% fell between 500 or more head per herd. A more in-depth use of each farm size response option within the whole range was used as part of a logit regression analysis

#### *5.2.1 Use of TelFarm Services*

Active subscribers indicated that recordkeeping support was the primary service used through TelFarm (Figure 3). Approximately 94% of respondents indicated they use recordkeeping support, while 75% indicated a use of farm financial analysis, and 69% use tax estimation and check-in meetings. Non-active individuals showed a similar preference of services with a slightly higher use of recordkeeping support at 97% and slightly less use of tax estimation and check-in meetings at 63%. Use of farm financial analysis by non-active individuals was the same as active members at 75%.

**Figure 5.3: Use of TelFarm Services by Active Members**

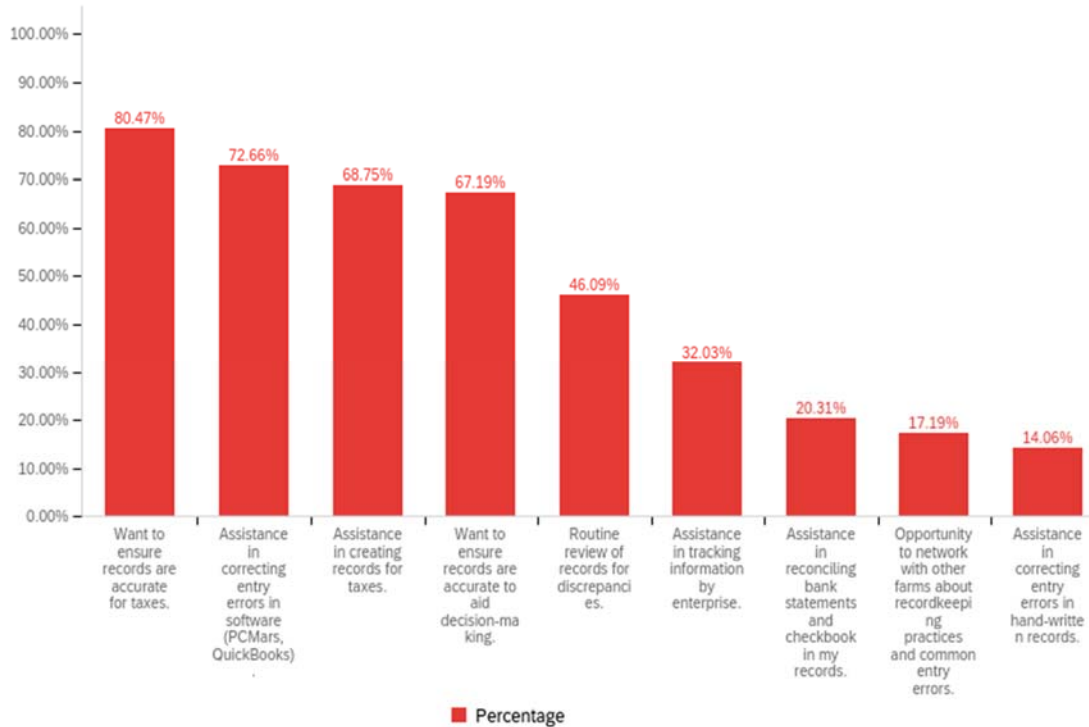


The emphasis on recordkeeping support was seen consistently in all farm types. Variances were seen only in relation to farm financial analysis and tax estimation services. Field crop farms indicated a higher use of farm financial analysis (80.49%) and tax estimation (76.19%) compared to all farm responses. However, dairy farms showed a stronger emphasis on farm financial analysis (82.61%) and a reduced interest in tax estimation (68.18%). Field crops and dairy farms combined indicate a 92.96% use of recordkeeping support, 81.25% use of farm financial analysis, and 73.44% use of tax estimation and check-in meetings. Active beginning farmers showed equal use of all three services at 100%. Non-active beginning farmers listed recordkeeping support use at 75%, farm financial analysis use at 75%, and tax estimation and check-in meetings use at 25%.

### 5.2.2 Expectation of Services

Survey respondents were supplied with a list of possible expectations that might exist for each service area. Individuals were asked to select all options that applied and given the opportunity to provide their own expectations if not already listed.

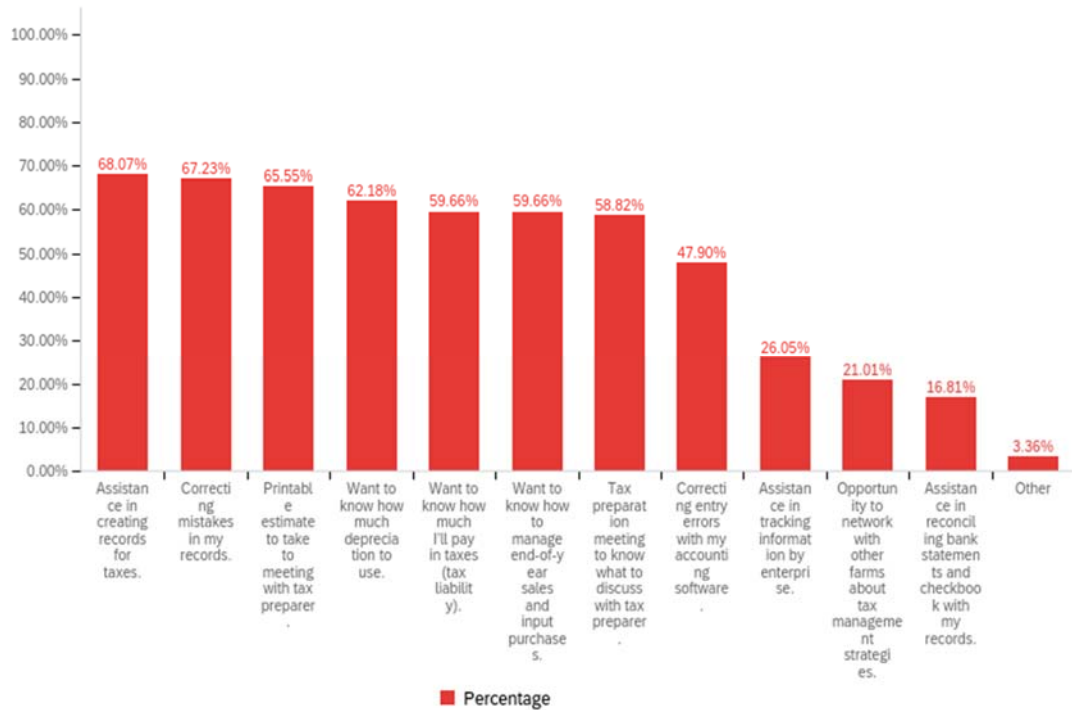
**Figure 5.4: Service Expectations for Recordkeeping Support**



Recordkeeping support expectations focused primarily on taxes and correcting farm record errors (Figure 4). The number one selection was to *ensure records are accurate for taxes*. Second highest selection was *correcting entry errors in recordkeeping software*. Third highest was *creating records for taxes*. The three choices listed were consistently ranked among top selections by all farm types analyzed, except for field crops. Field crops selected *ensuring records are accurate to aid decision-making* as an alternative to *creating records for taxes*.

Tax estimation and check-in meeting expectations mirrored those of recordkeeping support (Figure 5). The top selection was obtaining *assistance in creating records for taxes*. The second highest selection was *correcting mistakes in records*. The third highest selection was *having a printable estimate to take to meeting with tax preparer*. Followed by *wanting to know how much depreciation to use* as the fourth highest selection. The three top choices were consistently selected by almost all groups, with field crops providing the largest variance. Field crop respondents indicated their primary expectation focused around *wanting to know how to manage end-of-year sales and purchases*, followed by *how much depreciation to use*, and *correcting mistakes in records*. Field crop respondents did list *assistance in creating records for taxes* and *having a printable estimate to take to meeting with tax preparer* in a three-way tie for their fourth selection with *wanting to know how much tax liability the farm would pay*.

**Figure 5.5: Service Expectations for Tax Management & Check-In Meetings**

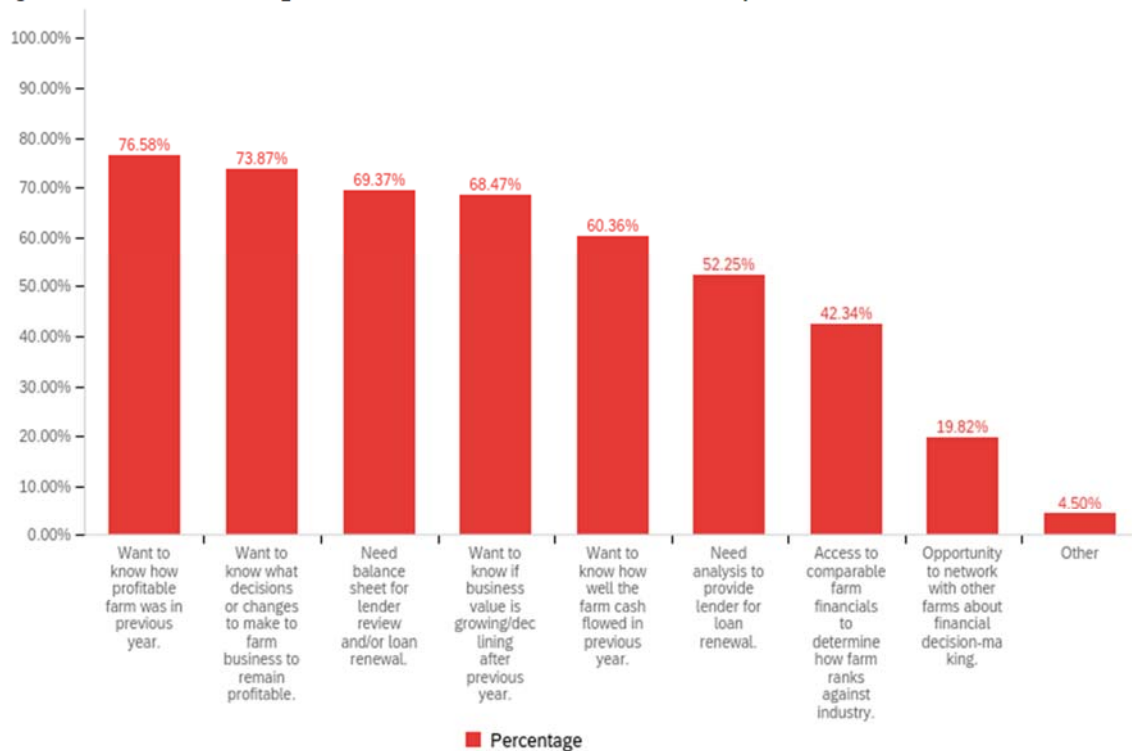


Farm financial analysis expectations primarily focused on profitability and updating balance sheet documents (Figure 6). The top selection was *wanting to know how profitable the farm was in the previous year*. The second highest selection was *wanting to know what decisions or changes to make to the farm business to remain profitable*. The third highest selection was *needing a balance sheet for lender review and/or loan renewal*. The top two selections were consistent across most farm types analyzed. Field crop respondents emphasized *wanting to know if the business value is growing/declining after the previous year* slightly higher as their third highest expectation.

The expectation of needing a balance sheet showed significant variance across farm types. *Needing a balance sheet for lender review and/or loan renewal* was field crop respondents' fourth selection, but in a tie with *wanting to know how well the farm cash flowed in the previous year*. Large field crops and large dairy respondents selected *needing a balance sheet for lender review and/or loan renewal* as their number one expectation.

Small acre, small field crops, small livestock, and beginning farmers selected *wanting to know how well the farm cash flowed in the previous year* instead of *needing a balance sheet for lender review and/or loan renewal* as part of their top three choices. Of those same four farm types mentioned, only non-field crop and beginning farmer groups highlighted *needing analysis to provide lender for loan renewal* as a top three selection (chosen second for both).

**Figure 5.6: Service Expectation for Farm Financial Analysis**

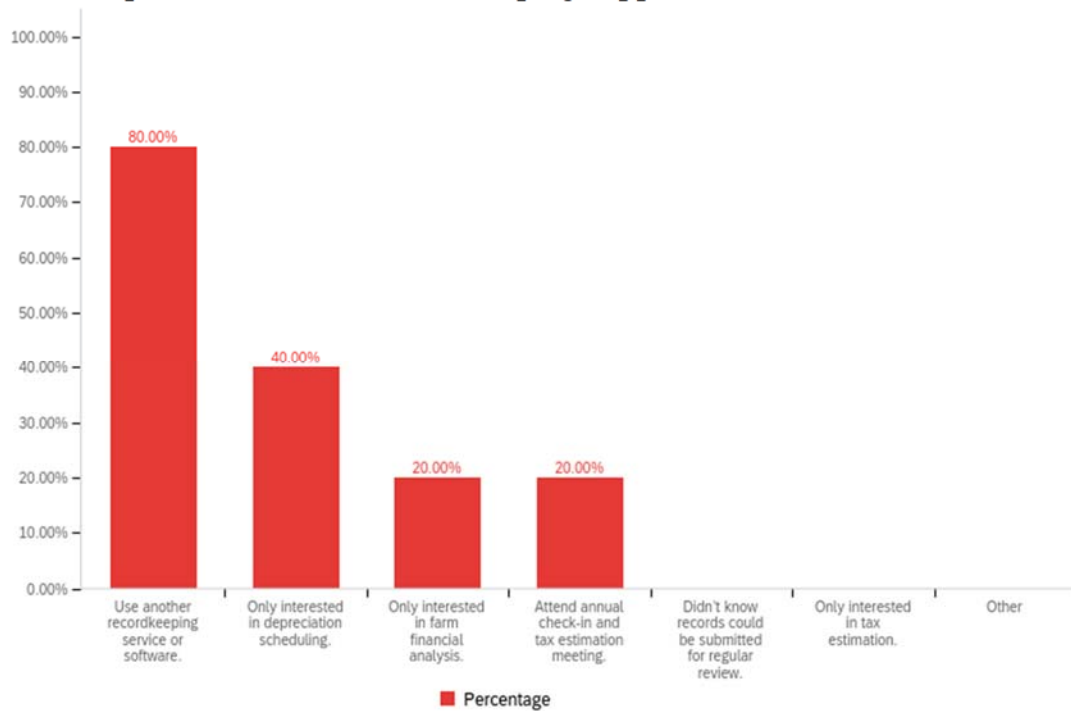


### 5.2.3 Reasons Why Services Are Not Used

Similar to expectation of services, survey respondents were supplied with a list of possible reason why service areas may not be used. Individuals were asked to select all options that applied and given the opportunity to provide their own reasons if not already listed.

Due to the high use of recordkeeping support services, there were not many responses to draw data from regarding a lack of use in comparison to other service areas. The top selection was *use of another recordkeeping service or software* at an 80% response rate (Figure 7). Respondents that chose this option were asked a follow-up question of which software or service was being used. QuickBooks was the primary software listed. The second highest selection was *only an interest in depreciation scheduling*. *An interest in only farm financial analysis and tax estimation* were tied for third highest. There were no significant variations amongst the farm types analyzed.

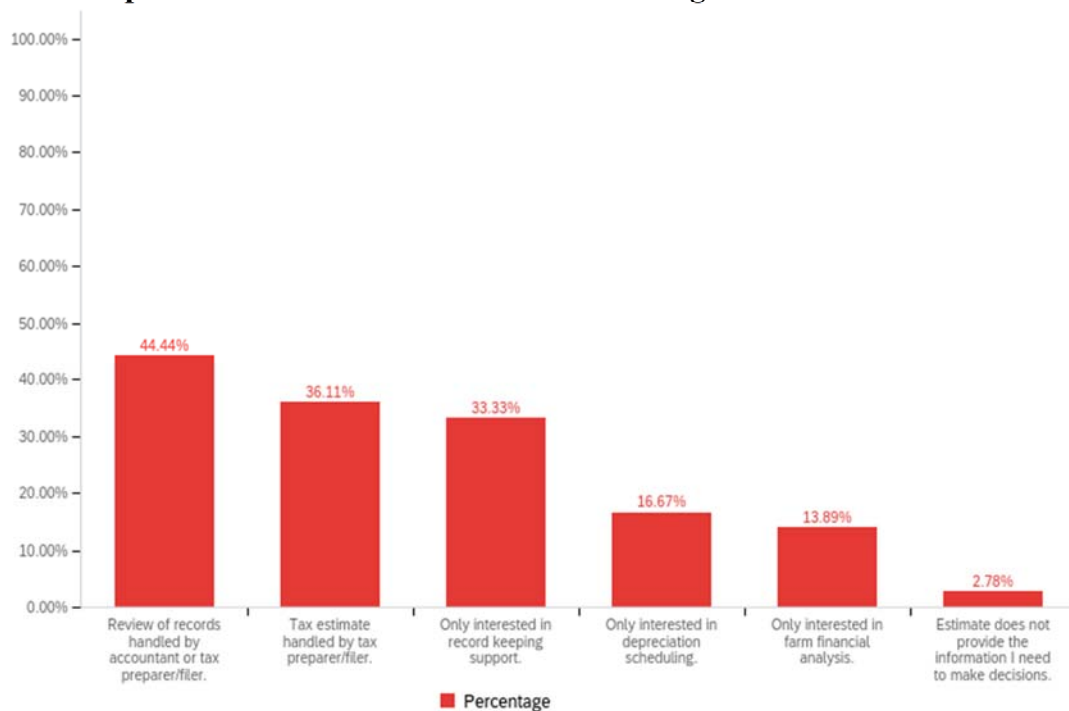
**Figure 5.7: Respondents Reasons Recordkeeping Support Services Are Not Used**



Reasons for not using tax estimation and check-in meetings were primarily focused on a duplication of services being received or lack of interest (Figure 8). The top reason for not using this service was a *review of records is handled by accountant or tax preparer/filer*. The second highest selection was *tax estimate handled by tax preparer/filer*.

The third highest selection was *only an interest in recordkeeping support services*. All three choices were consistently a top three selection by all farm groups analyzed, with the exception of small field crops and beginning farmers. Beginning farmers indicated a greater emphasis on the service *not providing the information needed to make decisions* (tied for second). Small field crops made the same selection as beginning farmers but rated it slightly lower (tied for third). The fourth highest reason across all farm types was *only an interest in depreciation scheduling*, which is offered as the only standalone service at lower cost.

**Figure 5.8: Respondents Reasons Tax Estimation Meetings Are Not Used**

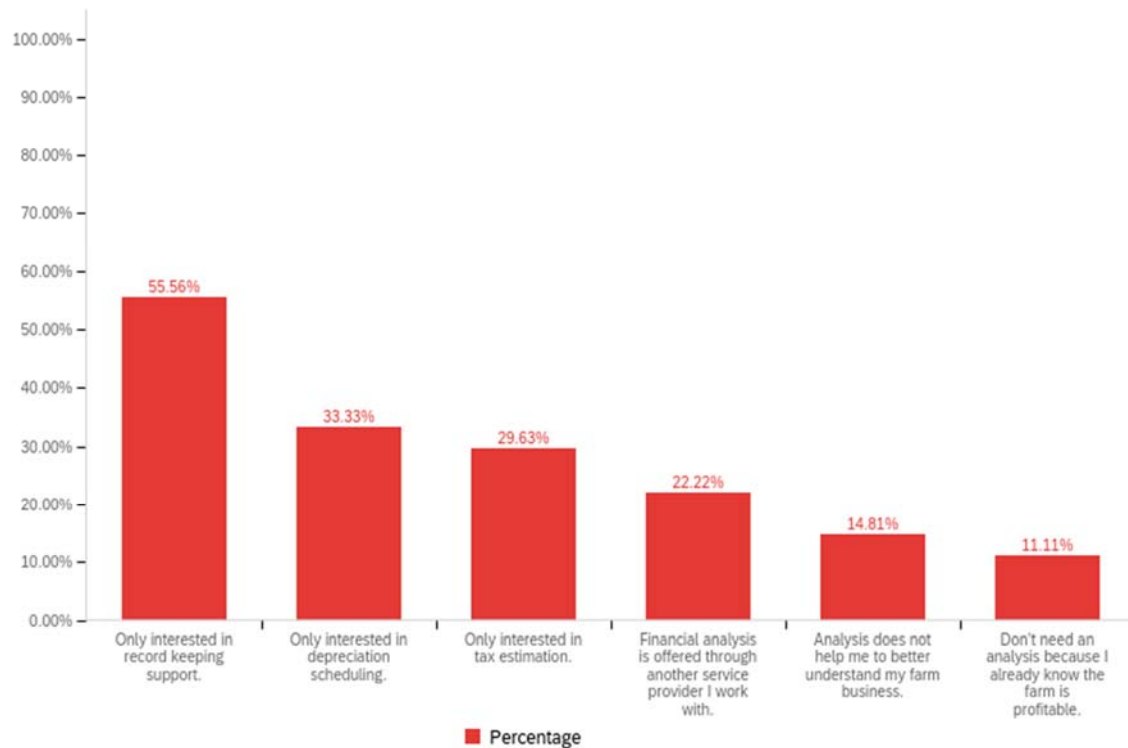


The results reveal that reasons for farm financial analysis services not being used focuses on an interest in other service areas. The top reason selected was *only an interest in recordkeeping support services* with a 55% response rate (Figure 9). A third of responses (33.33%) indicated *only an interest in depreciation scheduling* as the second highest



selection. The third highest selection was *only an interest in tax estimation and check-in meetings* at 29.63% of responses. The selection of *only an interest in recordkeeping support services* was consistently ranked as number one and *only an interest in depreciation scheduling* as number two by all farm types analyzed, except for field crops. Field crop respondents designated that *financial analysis being offered through another service provider they work with* as their highest selection. An *interest in only recordkeeping support services* was listed as their second highest selection.

**Figure 5.9: Respondents Reasons Farm Financial Analysis Services Are Not Used**



### **5.3 Logit Model Regression Probabilities on Membership and Service Usages**

Logit models and the resulting odds ratios were used to identify if any of the demographic variables collected could be used to predict TelFarm membership or use of services. The dependent variables used consisted of TelFarm membership, use of recordkeeping support, use of tax estimation and check-in meetings, and use of farm financial analysis. Each dependent variable was used in a separate analysis for a total of four regression models. The independent variables for each regression model were the same, with current members included as a variable for all three service models.

Independent variables included farm types, sizes, and established or beginning farmer status. Farm types included field crops, dairy, fruit, beef, and vegetables. Other farm types were grouped into a single “remaining farm” set for inclusion in the regression model.

Farm sizes used all response groups (i.e., 0-250 acres, 250-500 acres, herd size 0-50, herd size 50-100, etc.) within the range of options provided to survey participants.

The statistical significance of each independent variable reveals a relationship to the dependent variable. Odds ratios were calculated to help explain these relationships in more detail. At a value below one, an odds ratio signals that a farm has lower odds of being a TelFarm member. Odds ratios above one signals a high probability that those farms would be TelFarm members. Odds ratios equal to one signal that odds are the same for membership or non-membership in TelFarm and use or non-use of services. All odds-ratios equal to one were dropped from analysis.

#### *5.3.1 TelFarm Membership Logit Model Regression*

TelFarm membership was the first dependent variable analyzed. The logit model returned four variables with statistical significance: fruit, remaining farms, acres of 1,000 to

1,500, and established farmers (Table 5.2). Fruit and remaining farms were negatively related to membership while established farmers and acres of 1,000 to 1,500 were positively related.

For established farmers, results indicate they are 10.5 times the odds of being a TelFarm member over beginning farmers. Farms with acre sizes of 1,000 to 1,500 are 12.3 times the odds of being a TelFarm member over farms of lesser size (0 to 999 acres). Fruit’s negative relationship in the model implies that being a fruit producer decreases the likelihood of being a TelFarm member. The odds ratio of 0.0144 indicates that fruit producers have 98.56% (0.0144 – 1) less odds of being TelFarm members than other producers. Remaining farms have an odds ratio of 0.0785, indicating that they have 92.15% less odds of being TelFarm members than other producers.

**Table 5.2: Odds Ratios for TelFarm Membership**

Variables	Odds Ratio	95.0% conf. interval
FieldCrops	0.2185	[0.024, 1.990]
Dairy	0.5641	[0.021, 15.348]
Fruit	0.0144	[0.001, 0.325]
Beef	0.4388	[0.015, 12.469]
RemainingFarms	0.0785	[0.005, 1.158]
Acres0_250	5.637	[0.582, 54.596]
Acres250_500	0.7474	[0.136, 4.108]
Acres500_750	0.7801	[0.106, 5.723]
Acres750_1000	3.0247	[0.453, 20.210]
Acres1000_1500	12.3271	[0.956, 158.935]
Acres2000UP	0.4339	[0.020, 9.313]
HerdSize0_50	0.1752	[0.009, 3.337]
HerdSize100_250	0.7387	[0.048, 11.372]
HerdSize250_500	0.6082	[0.035, 10.596]
HerdSize500_1000	0.348	[0.023, 5.181]
HerdSize1000UP	3.0821	[0.189, 50.145]
EstablishedFarmer	10.5475	[1.294, 85.975]

Note: farm size acreages of 1,500 to 2,000 and vegetable producers were dropped.

### 5.3.2 Use of Recordkeeping Support Service Logit Model Regression

The model for use of recordkeeping support returned only one variable with statistical significance: established farmers (Table 5.3). For established farmers, their relationship with the dependent variable was positive. Results indicate they are 28.7 times the odds of being a TelFarm member over beginning farmers.

**Table 5.3: Odds Ratios for Use of Recordkeeping Support**

Variables	Odds Ratio	95.0% conf. interval
FieldCrops	1.3981	[0.254, 7.689]
Dairy	1.1268	[0.074, 17.158]
Beef	0.808	[0.025, 25.631]
Acres0_250	0.6878	[0.054, 8.785]
Acres750_1000	0.8233	[0.060, 11.301]
Acres1000_1500	1.2711	[0.098, 16.510]
HerdSize250_500	0.7911	[0.024, 26.106]
HerdSize500_1000	0.4548	[0.020, 10.302]
HerdSize1000UP	0.1642	[0.011, 2.355]
EstablishedFarmer	28.7241	[5.410, 152.516]

Note: herd sizes of 0-50, herd sizes of 100-250, farm size acreages of 250-500, 500-750, 1,500 to 2,000, and 2000 or more, as well as fruit, vegetable, and remaining farm producers were dropped.

### 5.3.3 Use of Tax Estimation and Check-In Meeting Logit Model Regression

The logit model for use of tax estimation and check-in meetings returned only one variable with statistical significance: acres of 1,000 to 1,500 (Table 5.4). For producers with acres of 1,000 to 1,500, their relationship with the dependent variable was negative. Their results indicate farm sizes of 1,000 to 1,500 acres have an odds ratio of 0.1030 or 89.70% (0.1030 – 1) less odds of using tax estimation and check-in meetings than other producers.

**Table 5.4: Odds Ratios for Use of Tax Estimation and Check-In Meeting**

Variables	Odds Ratio	95.0% conf. interval
FieldCrops	4.981	[0.498, 49.795]
Dairy	4.3341	[0.135, 138.849]
Fruit	3.7216	[0.269, 51.421]
Beef	3.0533	[0.098, 95.282]
Vegetable	2.8797	[0.117, 70.691]
RemainingFarms	2.575	[0.108, 61.532]
Acres0_250	0.2084	[0.024, 1.791]
Acres250_500	0.2595	[0.035, 1.900]
Acres500_750	1.0294	[0.072, 14.705]
Acres750_1000	0.6349	[0.085, 4.743]
Acres1000_1500	0.103	[0.013, 0.819]
HerdSize0_50	0.2451	[0.009, 6.999]
HerdSize100_250	0.4569	[0.021, 10.152]
HerdSize250_500	0.4009	[0.017, 9.355]
HerdSize500_1000	0.2573	[0.012, 5.448]
HerdSize1000UP	0.2827	[0.013, 6.019]
EstablishedFarmer	1.5168	[0.247, 9.322]

Note: producers with farm size acreages of 1,500 to 2,000 and 2,000 or more were dropped.

#### 5.3.4 Use of Farm Financial Analysis Logit Model Regression

The logit model for use of farm financial analysis returned three independent variables with statistical significance: beef, field crops, and dairy. All three variables had a positive relationship with the dependent variable. For beef and field crop producers, results indicate beef are 22.97 and field crops 17.6 times the odds of using the farm financial analysis service over other producers. Dairy had the highest odds ratio at 105.97, which signals that dairy producers are 106 times the odds of using the farm financial analysis service over other producers.

**Table 5.5: Odds Ratios for Use of Farm Financial Analysis**

Variables	Odds Ratio	95.0% conf. interval
FieldCrops	17.571	[1.116, 276.533]
Dairy	105.9743	[3.229,3477.707]
Fruit	6.3507	[0.306, 131.663]
Beef	22.9732	[0.795, 664.120]
Vegetable	7.3936	[0.292, 186.992]
RemainingFarms	6.2402	[0.223, 174.737]
Acres0_250	0.5481	[0.065, 4.615]
Acres250_500	2.4402	[0.271, 21.935]
Acres500_750	0.3947	[0.045, 3.470]
Acres750_1000	1.8424	[0.226, 14.999]
Acres1000_1500	0.2918	[0.040, 2.108]
Acres2000UP	0.2647	[0.011, 6.338]
HerdSize100_250	0.308	[0.019, 4.865]
HerdSize250_500	0.2164	[0.013, 3.707]
HerdSize500_1000	0.1297	[0.009, 1.860]
HerdSize1000UP	1.6762	[0.070, 40.390]
EstablishedFarmer	0.215	[0.020, 2.266]

Note: producers with farm size acreages of 1,500 to 2,000 and herd sizes of 0 to 50 were dropped.

## CHAPTER VI: CONCLUSIONS AND RECOMMENDATIONS

The objective of this study was to gain a better understanding of TelFarm clientele's participation in services. That understanding expanded into expectations associated with each service area, if service areas are meeting clientele needs, and potential areas of improvement. The data collected revealed important insight into each area analyzed and, in certain cases, statistically significant information about specific farm types and sizes. Most importantly the results have provided meaningful direction for TelFarm to consider as it progresses forward.

Membership within TelFarm is generally considered to be predominantly established farmers, which was reflected in the 94.66% of responses coming from that type of farm producer. The lower percentage of beginning farmers enrolled is a concern to program longevity and potentially one of the largest contributors to the decline in membership over the past several decades. The 2017 Census of Agriculture indicated that over 25% of producers within the State of Michigan were new and beginning farmers (USDA 2017). In comparison to the Census data, only 5.34% of TelFarm respondents were beginning farmers. The concern is compounded by the regression analysis that established farmers are 10.5 times more likely to become members in comparison to beginning farmers.

The data serves as an indicator that TelFarm needs to prioritize understanding the specific needs and expectations of beginning farmers. A significant investment of time and resources is necessary to achieve such an objective but would provide an accurate, thorough understanding of beginning farmers' needs within a Farm Management Information System (FMIS). Those needs from within a FMIS would serve as the building

blocks for any improvements or new offerings TelFarm would pursue to increase the likelihood of enrollment from new and beginning farmers.

Focus groups held within various regions of the state would be one method of holding an actual, live conversation with beginning farmers. These group discussions could be organized and promoted with assistance from production focused MSU Extension educators who work with farms within the designated areas. Another method would be to conduct a survey across the state. A contact list of 200 beginning farmers of various farm types and sizes is available from the recently completed webinar program organized by MSU Extension's Beginning Farmers DEMaND Series. Additional contacts may be obtained by partnering with farm organizations that support and provide resources to beginning farmer development within the state. These same organizations could be enlisted to help develop, organize, and distribute the survey. They could also participate in organizing or hosting regional focus group discussions.

A similar approach is needed for improving membership of Michigan fruit farms. The odds of enrollment being 98.56% less likely than other producers indicate a strong disconnect between fruit farm expectations and TelFarm offerings. A discussion and collection of data is needed to better understand where the disconnect lies and how TelFarm can begin to address making improvements. Michigan's fruit industry ranks 5<sup>th</sup> nationally amongst all fruit growing states, which makes it too important of an industry not to be supported by TelFarm services (USDA 2017). Enlisting assistance from farm organizations and MSU Extension personnel that support fruit growers directly is needed to organize any focus groups or meaningful data collection.



Data collected on services reveals that respondents have similar expectations for recordkeeping support and tax estimation. Ensuring accuracy and creation of records for income tax preparation stood out in both service descriptions as primary focus areas. Correcting records within software was also listed as a significant expectation in both services. This mirroring of expectations indicates that the services are a duplication of efforts. Additionally, over 94% of respondents listed recordkeeping support as a service of use compared to 69.62% of respondents indicating use of tax estimation and check-in meetings. Tax estimation services also ranked third consistently in comparison to recordkeeping and farm financial analysis services.

Given the percentage of use and similarity of expectations to recordkeeping support, TelFarm should consider eliminating the tax estimation and check-in meetings as a formal service. Correction of records and ensuring accuracy for tax preparation can be achieved through a higher emphasis on having records routinely reviewed by TelFarm staff. Additionally, MSU Extension could be enlisted to provide annual “refresher training” similar to what is offered by the Kansas Farm Management Association (KFMA) with regard to QuickBooks. These trainings would provide basic walkthroughs and educational exercises on fundamental accounting principles and software use. TelFarm’s expansion into supporting both PcMars and QuickBooks would provide an opportunity to provide training in both software and to market program offerings if trainings were made available to the general public.

Eliminating tax estimation and check-in meetings would require a new method to providing a printable tax liability estimate for meeting with tax preparers, the third highest expectation given by respondents. Fortunately, MSU Extension already has a program

offering in place for Farm Bill education that could serve as a template to replace the tax estimation service. In Farm Bill meetings, producers review program options, payment calculations, and factors to consider in determining which option to select for the production year. An estimating tool built in Microsoft Excel is made publicly available and a walkthrough of its function provided at each meeting. Producers are encouraged to schedule one-on-one meetings with Farm Business Management Educators to review estimate printouts and discuss questions about sign-up options. A similar approach to annual Farm Bill education for income tax preparation could be put in place. The current printable income tax estimates provided by TelFarm are created using a Microsoft Excel based tool that is updated annually (Michigan State University 2022). A public meeting offering a walkthrough of routine income tax considerations for tax planning and demonstration of a publicly available estimation tool could be held annually. This would provide producers with a means of obtaining a printable estimate and make income tax education available to the general public. Producers could be encouraged to schedule one-on-one meetings with MSU Extension educators to review estimate printouts and discuss questions related to tax management planning.

Data collected on the service of a farm financial analysis indicates that dairy, field crops, and beef are the mostly likely to participate. Business analysis summaries from TelFarm would support the data for dairy and field crops as those are the only farm types featured (TelFarm 2020). Insufficient participation exists with beef farms to generate a public summary report and maintain producer confidentiality. At 106 times the likelihood of participating over other farms, it would seem that dairy farms would have the highest level of participation. However, TelFarm's business analysis reports from 2018 through

2020 show 31% more field crop farms participating compared to dairy year over year. In that same period of 2018 through 2020, dairy farms saw a decline from 33 to 27 participants. Field crop farms are 17.57 times more likely to complete an analysis and also saw a decrease from 48 to 39 participants in the same period.

More analysis is needed to determine if the declines in participation are due to farm attrition given the lack of beginning farmer involvement in TelFarm. If reductions in the service use are tied to farm retirements or sales, efforts related to beginning farmer enrollment may assist participation for beef, dairy, and field crop farms in this service area. If reductions are not due to farm attrition, a discussion and further collection of data is recommended from these farm types. Given the high likelihood of participation, it is important to better understand where the disconnect lies and how TelFarm can begin to address making improvements.

MSU Extension and TelFarm place a high value on farm performance information (Peterson et al. 1993). Farm performance information is the primary purpose of a farm financial analysis and routinely focuses on profitability, cash flow, and net worth change. However, research data reveals that expectations for farm financial analysis are largely placed on farm profits. Producers are interested in knowing how profitable the farm was and how to remain profitable moving forward. Of concern is a lower expectation that producers have towards net worth change and cash flow, especially in comparison to needing a balance sheet for lender review. The creation of a balance sheet in a financial analysis is largely inputting data provided by the producer into a printable form. Review and reconciliation of records is involved, but data is largely provided by producers and not a process of information extraction by MSU personnel. Nevertheless, need of a balance

sheet is routinely rated higher than net worth change and cash flow by respondents (over 9% higher than cash flow).

Additionally, results show that only 42.34% of respondents indicated that access to comparable farm financial data to determine how the farm ranks against the industry is a valued expectation. TelFarm identifies one of its key roles within the industry is to obtain benchmark data and provide producers with industry comparisons to other farms for performance evaluation (Peterson et al. 1993). The research data indicates a disconnect exists between an important objective of TelFarm and producer expectations. To address the disconnect, further exploration of producer expectations and service offerings within a farm financial analysis are needed.

TelFarm needs to further research producer expectations related to net worth change, cash flow and industry comparison data. A fundamental question of “why” these options are rated lower was not part of this research effort. Identifying the “why” to responses would provide valuable information to determine what could be done to align expectations between producers and TelFarm. The use of focus groups and surveys as described for further research of other service area concerns would also apply to identifying this need.

The research project did not address specific concerns to TelFarm’s operational aspects, such as market competition or personnel challenges. However, recommendations to collect more information on specific needs of producers (i.e., beginning farmers, fruit growers, etc.) provides an opportunity to address these additional concern areas. Questions related to TelFarm’s perception compared to other FMIS offerings in the marketplace and

involvement of Extension staff could be included in focus groups or surveys. Additionally, since this research project began, MSU Extension has begun a process to hire a State Coordinator for the TelFarm program. The State Coordinator is expected to be tasked with reviewing TelFarm and also establishing relationships with many of the agribusinesses and organizations that support Michigan agriculture. The research data and recommendations found within this report should provide a guide on possible opportunities for collaboration and improvement of TelFarm to ensure producer needs are met.

### *6.1 Additional Recommendations Based on Author Experience*

There are additional recommendations for TelFarm's consideration that cannot be statistically based on the data collected. Instead, they are offered on the researcher's involvement in conducting TelFarm services and expertise derived from over 20 years of farm industry experience. These recommendations focus specifically on the farm financial analysis service.

MSU Extension and TelFarm should conduct an internal review related to how farm financial analysis services are delivered. The aim of the review would be to consider TelFarm's role in producers' lowered expectations related to cash flow, net worth change, and industry comparisons. A key component for review is that farm financial analysis meetings are led by Farm Business Management Educators. Most of these educators have been employed in their role for less than five years. Each individual has received different amounts and types of one-on-one training on FINPACK software and delivery of analysis reviews. There are also varying levels of educational backgrounds and industry experience that undoubtedly shape each educator's understanding of farm performance differently from another. Annual team preparations for farm financial analysis meetings aim to

develop consistency but tend to focus on the mechanics of producing an accurate output report to review with producers. Limited time is spent on in-depth review of how discussions of profitability, cash flow, net worth change, and industry comparison data should be conducted. This may be creating a disconnect between understanding how to produce an accurate output report, but not developing best practices to articulate the value of information found within it. A change in approach on training and preparation may be required to achieve that objective.

Farm Business Management Educators are required to pursue professional development events on an annual basis. These events may serve as an opportunity to explore how to improve discussing key elements of farm performance information with producers. For example, the Center for Farm Financial Management (CFFM) through the University of Minnesota develops and maintains the FINPACK software used by TelFarm. They offer routine training of the software, but have also expressed a willingness to provide additional assistance to participants of the FINBIN database, including Michigan State University. The CFFM is one of the largest FMIS in the Midwest and routinely has several thousand producers participate in farm financial analysis services each year; 2408 producers in 2020 (Center for Farm Financial Management n.d. 2022). A professional development training with the CFFM could focus specifically on presentation of profitability, cash flow, net worth change, and industry comparisons with producers. Shared discussion of how CFFM's staff review FINPACK output reports and FINBIN data with producers could provide insight into how to weight each area more equally in a review. These discussions could also provide additional ideas on promoting benefits of

industry comparisons after statewide meetings are completed and the annual report is published.

A review should be conducted with regard to best practices for promoting availability, access, and use of industry comparison data. This includes how Michigan State University can participate in the distribution of annual business analysis summary reports produced by TelFarm. For example, the summary report is not routinely distributed to all TelFarm members upon publication. Internal discussions regarding responsibility for dissemination of the report reveal confusion on whether that rests with TelFarm itself or with Extension educators. A jointly written article is published annually to highlight the availability of the report and key areas of interest to farm producers. However, any additional distributions of the summary are provided by Farm Business Management Educators, who share information with producers individually or in limited Extension programming efforts. While a greater emphasis of using industry comparison data within Extension programming is recommended, it should not be relied upon as the sole method of promotion.

MSU Extension needs to develop a more thorough and widespread campaign showcasing availability of industry comparison data. The campaign should also highlight how information can be used by producers to improve decision-making. Partnerships with industry organizations to identify more avenues for dissemination of industry comparisons need to be explored. One key relationship to pursue is GreenStone Farm Credit Services, who used to participate in sharing their farm financial analysis data with TelFarm and the FINBIN database. While a competitor for many of the services offered by TelFarm, GreenStone is also an MSU Extension partner in many collaborative programming efforts.

This includes programming focused on developing and sharing resources related to farm business management to beginning farmers. A renewed effort to re-establish or create a new relationship between this organization and TelFarm would provide an avenue to explore how to promote and highlight benefits of industry comparisons to producers.



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APPENDIX A: MSU TELFARM PARTICIPATION SURVEY

# MSU TelFarm Participation Survey

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Start of Block: Default Question Block

Q0 MSU TelFarm Participation Survey

*Thank you for taking the time to complete this survey for the MSU TelFarm program.*

*Please proceed to the survey by choosing the "Next" button.*

End of Block: Default Question Block

---

Start of Block: Section 1 - Demographics/Background

S1 Section 1. Demographics/Background

---

S1Q1 What type of farm do you own/operate?

- Beef (3)
- Christmas Tree (11)
- Dairy (2)
- Field Crops (corn, soybeans, wheat) (1)
- Fruit (4)
- Greenhouse (10)
- Horse (13)
- Poultry (9)
- Sheep (8)
- Swine (7)
- Vegetables (5)
- Other (6) \_\_\_\_\_

---

*Display This Question:*

*If S1Q1 = Field Crops (corn, soybeans, wheat)*

*Or S1Q1 = Fruit*

*Or S1Q1 = Vegetables*

*Or S1Q1 = Christmas Tree*

S1Q2 How many acres do you farm?

- 0 - 250 (1)
  - 250 - 500 (2)
  - 500 - 750 (3)
  - 750 - 1,000 (4)
  - 1,000 - 1,500 (5)
  - 1,500 - 2,000 (6)
  - 2,000+ (7)
- 

*Display This Question:*

*If S1Q1 = Dairy*

*Or S1Q1 = Beef*

*Or S1Q1 = Swine*

*Or S1Q1 = Sheep*

*Or S1Q1 = Poultry*

*Or S1Q1 = Horse*

S1Q3 Number of animals in your livestock herd?

- 0 - 50 (1)
  - 50 - 100 (2)
  - 100 - 250 (3)
  - 250 - 500 (4)
  - 500 - 1,000 (5)
  - 1,000+ (6)
-

S1Q4

What year were you born?

---

S1Q5 How many years have you been managing a farm business?

0 - 10 years (1)

10+ years (2)

S1Q6 What is your highest level of education?

High School (1)

Trade School (2)

Some College (3)

Undergraduate College Degree (4)

Graduate College Degree (Masters or Doctorate) (5)

S1Q7 What is the main county that your farm is headquartered in?

▼Alcona (4) ... Wexford (83)

End of Block: Section 1 - Demographics/Background

Start of Block: Section 2 - TelFarm Enrollment

S2 Section 2. TelFarm Enrollment

S2Q1 Are you currently a member of the MSU TelFarm program?

- Yes (1)
- No (2)

*Skip To: S2Q2A If S2Q1 = No*  
*Skip To: S2Q1A If S2Q1 = Yes*

*Display This Question:*  
*If S2Q1 = Yes*

S2Q1A How long have you been a member of TelFarm?

- 1 year (1)
- 2 years (2)
- 3 years (3)
- More than 3 years (4)

*Display This Question:*  
*If S2Q1 = Yes*

S2Q1B Which of the following TelFarm services do you currently use?

	Yes (1)	No (2)
Recordkeeping & Support (1)	<input type="radio"/>	<input type="radio"/>
Tax Estimation & Check-In Meetings (2)	<input type="radio"/>	<input type="radio"/>
Farm Financial Analysis (3)	<input type="radio"/>	<input type="radio"/>

Display This Question:

If S2Q1 = Yes

Carry Forward Selected Choices from "S2Q1B"



S2Q1C Which of the following TelFarm services you indicated not using have you used in the past?

	Yes (1)	No (2)
Recordkeeping & Support (x1)	<input type="radio"/>	<input type="radio"/>
Tax Estimation & Check-In Meetings (x2)	<input type="radio"/>	<input type="radio"/>
Farm Financial Analysis (x3)	<input type="radio"/>	<input type="radio"/>

Display This Question:

If S2Q1 = No

S2Q2A How long ago did you cease to be a member of TelFarm?

- 1 year (1)
- 2 years (2)
- 3 years (3)
- More than 3 years (4)

Display This Question:

If S2Q1 = No



S2Q2B Which of the following TelFarm services have you used?

	Yes (1)	No (2)
Recordkeeping & Support (1)	<input type="radio"/>	<input type="radio"/>
Tax Estimation & Check-In Meetings (2)	<input type="radio"/>	<input type="radio"/>
Farm Financial Analysis (3)	<input type="radio"/>	<input type="radio"/>

*Display This Question:*

*If S2Q1 = No*

S2Q2C What reasons led to the decision not to renew your TelFarm membership? (Choose all options that apply.)

- Didn't provide the type of support I was seeking for my farm business. (1)
- Farm financial analysis is handled by another service provider. (2)
- Recordkeeping and support are handled by another service provider. (3)
- Tax estimation is handled by another service provider. (6)
- Retired from farming. (4)
- Subscription cost was too high. (5)
- Other (7) \_\_\_\_\_

End of Block: Section 2 - TelFarm Enrollment

Start of Block: Section 3 - Recordkeeping and Support

S3 Section 3. Recordkeeping & Support

S3Q1 What are your expectations when seeking recordkeeping assistance for your farm?  
(Choose all options that apply.)

- Assistance in correcting entry errors in software (PcMars, QuickBooks). (1)
- Assistance in correcting entry errors in hand-written records. (2)
- Assistance in reconciling bank statements and checkbook in my records. (3)
- Assistance in creating records for taxes. (4)
- Assistance in tracking information by enterprise. (5)
- Opportunity to network with other farms about recordkeeping practices and common entry errors. (6)
- Routine review of records for discrepancies. (7)
- Want to ensure records are accurate for taxes. (8)
- Want to ensure records are accurate to aid decision-making. (9)
- Other (10) \_\_\_\_\_

---

*Display This Question:*

*If S2Q1B = Recordkeeping & Support [ No ]*

*Or S2Q2B = Recordkeeping & Support [ No ]*

S3Q2 Which of the following best describes the reason(s) you do not use TelFarm's recordkeeping support? (Choose all options that apply.)

- Attend annual check-in and tax estimation meeting. (7)
- Didn't know records could be submitted for regular review. (1)
- Only interested in tax estimation. (2)
- Only interested in depreciation scheduling. (3)
- Only interested in farm financial analysis. (4)
- Use another recordkeeping service or software. (6)
- Other (5) \_\_\_\_\_

---

*Display This Question:*

*If S3Q2 = Use another recordkeeping service or software.*

S3Q2A Please specify the service or software you use.

\_\_\_\_\_

End of Block: Section 3 - Recordkeeping and Support

---

Start of Block: Section 4 - Tax Estimation & Check-In Meetings

S4 Section 4. Tax Estimation & Annual Records Check-In Meetings

---

S4Q1 What are your expectations with an annual records check-in and tax management assistance for your farm? (Choose all options that apply.)

- Assistance in reconciling bank statements and checkbook with my records. (1)
- Assistance in creating records for taxes. (2)
- Assistance in tracking information by enterprise. (3)
- Correcting mistakes in my records. (4)
- Correcting entry errors with my accounting software. (5)
- Opportunity to network with other farms about tax management strategies. (6)
- Printable estimate to take to meeting with tax preparer. (7)
- Tax preparation meeting to know what to discuss with tax preparer. (8)
- Want to know how much I'll pay in taxes (tax liability). (9)
- Want to know how to manage end-of-year sales and input purchases. (10)
- Want to know how much depreciation to use. (11)
- Other (12) \_\_\_\_\_

---

*Display This Question:*

*If S2Q1B = Tax Estimation & Check-In Meetings [ No ]*

*Or S2Q2B = Tax Estimation & Check-In Meetings [ No ]*

S4Q2 Which of the following best describes the reason(s) you do not participate in TelFarm's annual records check-in and tax estimation meeting? (Choose all options that apply.)

- Estimate does not provide the information I need to make decisions. (1)
- Only interested in record keeping support. (2)
- Only interested in depreciation scheduling. (3)
- Only interested in farm financial analysis. (4)
- Review of records handled by accountant or tax preparer/filer. (5)
- Tax estimate handled by tax preparer/filer. (6)
- Other (7) \_\_\_\_\_

End of Block: Section 4 - Tax Estimation & Check-In Meetings

---

Start of Block: Section 5 - Farm Financial Analysis

S5 Section 5. Farm Financial Analysis

---

S5Q1 What are your expectations when conducting a farm financial analysis for your farm?  
(Choose all options that apply.)

- Access to comparable farm financials to determine how farm ranks against industry. (1)
- Need analysis to provide lender for loan renewal. (2)
- Need balance sheet for lender review and/or loan renewal. (3)
- Opportunity to network with other farms about financial decision-making. (4)
- Want to know how profitable farm was in previous year. (5)
- Want to know how well the farm cash flowed in previous year. (6)
- Want to know if business value is growing/declining after previous year. (7)
- Want to know what decisions or changes to make to farm business to remain profitable. (8)
- Other (9) \_\_\_\_\_

---

*Display This Question:*

*If S2Q1B = Farm Financial Analysis [ No ]*

*Or S2Q2B = Farm Financial Analysis [ No ]*

S5Q2 Which of the following best describes the reason(s) you do not use TelFarm for a farm financial analysis? (Choose all options that apply.)

- Analysis does not help me to better understand my farm business. (1)
- Don't need an analysis because I already know the farm is profitable. (2)
- Financial analysis is offered through another service provider I work with. (3)
- Only interested in record keeping support. (4)
- Only interested in depreciation scheduling. (5)
- Only interested in tax estimation. (6)
- Other (7) \_\_\_\_\_

End of Block: Section 5 - Farm Financial Analysis

---

Start of Block: Section 6 - Participation Improvement

S6 Section 6. Participation Improvement

*Display This Question:*

*If S2Q1 = Yes*

*Carry Forward Selected Choices from "S2Q1B"*



S6Q1A Please rank the TelFarm services you indicated using by the indicated scale.

	Terrible (1)	Poor (2)	Average (3)	Good (4)	Excellent (5)
Recordkeeping & Support (x1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tax Estimation & Check-In Meetings (x2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Farm Financial Analysis (x3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:

If S2Q1 = No

Carry Forward Selected Choices from "S2Q2B"



S6Q1B Please rank the TelFarm services you indicated using by the indicated scale.

	Terrible (1)	Poor (2)	Average (3)	Good (4)	Excellent (5)
Recordkeeping & Support (x1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tax Estimation & Check-In Meetings (x2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Farm Financial Analysis (x3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



*Display This Question:*

*If If Please rank the TelFarm services you indicated using by the indicated scale. Recordkeeping & Support - Terrible Is Selected*

*Or Or Please rank the TelFarm services you indicated using by the indicated scale. Recordkeeping & Support - Poor Is Selected*

*Or Or Please rank the TelFarm services you indicated using by the indicated scale. Tax Estimation & Check-In Meetings - Terrible Is Selected*

*Or Or Please rank the TelFarm services you indicated using by the indicated scale. Tax Estimation & Check-In Meetings - Poor Is Selected*

*Or Or Please rank the TelFarm services you indicated using by the indicated scale. Farm Financial Analysis - Terrible Is Selected*

*Or Or Please rank the TelFarm services you indicated using by the indicated scale. Farm Financial Analysis - Poor Is Selected*

*Or Or Please rank the TelFarm services you indicated using by the indicated scale. Recordkeeping & Support - Terrible Is Selected*

*Or Or Please rank the TelFarm services you indicated using by the indicated scale. Recordkeeping & Support - Poor Is Selected*

*Or Or Please rank the TelFarm services you indicated using by the indicated scale. Tax Estimation & Check-In Meetings - Terrible Is Selected*

*Or Or Please rank the TelFarm services you indicated using by the indicated scale. Tax Estimation & Check-In Meetings - Poor Is Selected*

*Or Or Please rank the TelFarm services you indicated using by the indicated scale. Farm Financial Analysis - Terrible Is Selected*

*Or Or Please rank the TelFarm services you indicated using by the indicated scale. Farm Financial Analysis - Poor Is Selected*

S6Q2 What changes do you want to see in the services you indicated need improvement?

---

*Display This Question:*

*If If What changes do you want to see in the services you indicated need improvement? Text Response Is Not Empty*

S6Q3 Would you use these services if your suggestions for improvement are implemented?

Yes (1)

No (2)

**End of Block: Section 6 - Participation Improvement**