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Market Segments and Farmer Preferences for Financial Record Systems

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Farmers today often have a great deal of raw data at their disposal with which to make decisions. These data include crop production and yield, soil test, and financial records. In order to make appropriate economic decisions, the financial records must be used in conjunction with the resulting production data. However, many farmers do not realize the full value of financial information and utilize financial records simply to complete income taxes. Understanding how and why farmers use financial records can assist in

With a large number of computerized record-keeping systems available today, some of the agricultural specific systems have been struggling to identify appropriate market segments and attributes that meet farmer demand. Alternative systems that are cash or cash/accrual financial record systems are widely available at a lower cost than farm-specific software. The potential advantages of farm-specific software include incorporated knowledge of farm tax law and farm specific charts of accounts. University Extension services in many states support or license software for financial analysis—although these programs are less common than in the past as the consolidation of agriculture and declining university budgets have eliminated many of these programs. Similarly some agribusiness firms offer software, support, analysis and consulting for farm firms. Summarizing farm financial information serves farmers by providing an assessment of their profitability, solvency and liquidity situation. This information can be used to benchmark performance against like farms and track progress as well as serve as the foundation for sound business decisions. From the University perspective, the information gathered from farmers can often be used for applied research and outreach

purposes. In addition, financial summaries are economic intelligence regarding the viability and competitiveness of agricultural industries.

The overall objective is to determine which computerized, financial record-keeping system attributes farmers place value on and are willing to pay for. More specific objectives included:

- 1. Identify current systems of financial records utilized by Michigan farmers.*
- 2. Examine how much farmers use financial information in decision making.*
- 3. Identify appropriate financial record-keeping attributes for different types of farmers and organizations.*
- 4. Collectively utilize the gathered information to improve outreach efforts in Michigan, contribute to related issues at the broader national level, and to better identify areas of additional needed understanding for future research.*

The paper proceeds as follows. In the next section the survey instrument and sample are discussed. Then results about

Survey

A survey was written that included four sections to collect information about (a) the operator, (b) the operation, (c) current farm financial records system and how these records were utilized, and (d) a choice experiment to assess how the farmers value financial record system attributes.

The survey was distributed by mail. A total of 2,930 farms were in the initial survey set. The survey was sent to the complete list of MSU University (n=427) and Farm Credit Service Agribusiness (n=501) clients. In addition, to compare to the general farm population, we randomly surveyed 2,000 farms drawn randomly from commercial

farms in the Michigan office of the U.S. Department of Agriculture's National Agricultural Statistics Service (NASS) database (referred to hereafter as the NASS set). The random sample was intended to include 1,000 farms with \$100,000-250,000 in farm sales and 1,000 farms with >\$250,000 in sales. According to NASS, there were about 4,000 farms in each group in Michigan in 2008 so our sample included about one-quarter of all farms in Michigan with \$100,000 or more in sales. There was no overlap between the three sample lists as any University or Agribusiness clients that were randomly drawn were purged and replaced in the NASS set.

A total of 1,130 surveys were returned. 186 were no longer farming and thus ineligible for our purposes. The 944 useable completes generated represent an adjusted response rate of 34.4%. This response rate is acceptable given the financially sensitive nature of some of the information collected. The response rate varied across groups. University clients responded at a 55.3% rate, Agribusiness clients at a 27.7% rate, and the NASS random sample at 28.5% rate. The results will be discussed by group to facilitate comparison.

Consistent with MSU research guidelines, respondents could skip any questions they wished. Therefore, the number of respondents may vary from question to question. In addition, some questions could be answered with multiple responses. For those questions, the percentage of responses and/or respondents are indicated.

Results and Discussion

Summary statistics regarding the respondents and their operations are presented first following more detailed analysis of farm records systems, their uses and preferences for attributes.

Operator and Operation Characteristics

Consistent with Ag Census results and other surveys by the authors, the average operator age was mid-fifties for the random sample (Table 1). Agribusiness clients were statistically the same age while University clients were older on average. Operator education was virtually identical across the three samples. University clients had several years more experience in farming consistent with their older operator age.

Off farm income and/or benefits were important to family living on 51 percent of NASS operations. This percentage was slightly lower for the University clients and higher for the Agribusiness clients. University clients were more likely to retire in the next 10 years and have a farm transfer plan. Agribusiness clients were as likely as University to have a farm transfer plan. A larger percentage of the NASS sample indicated that the next generation had no interest in farming or that they were farming their assets at this point.

With respect to farm organization, the majority of all three samples were sole proprietorships (Table 2). Partnerships were more common in the University and Agribusiness sets than in the general farm population. The University and Agribusiness clients were also more likely to be LLC's but less likely to be family or non-family corporations. Almost all farms had crop enterprises of some type while less than half of the NASS sample had livestock enterprises of any type. Almost six in ten University and Agribusiness clients had livestock enterprises.

Agribusiness clients operated the largest farms measured by total acres operated. University clients had the least average acres operated but the most acres owned. Field crops (e.g., corn, soybeans, wheat) were the most common crop enterprise in all three sets

(Table 3). University and Agribusiness clients were more likely to have silages and hay as they also had the livestock enterprises that would utilize these crops. Fruit and vegetable enterprises were present on 20-25 percent of the farms in each set. University and Agribusiness clients were more likely to have dairy related enterprises but virtually all other livestock enterprises were present at about the same rate as the NASS sample (Table 4).

Current Farm Record Systems and Uses

Results indicated a wide variety of systems currently utilized (Table 5). Many farmers also used multiple systems simultaneously possibly indicating that no single system met all of their needs. Thus, there may be room for improvement in existing systems. Keep in mind that while we expect all the University and Agribusiness client lists to indicate that record system, some may not have viewed that as their primary system or, for example in the case of the paperbook with University, may have wanted to indicate that they were not utilizing the computerized version.

When considering the general farm population and the potential for market expansion, the first column of Table 5 is the relevant set of systems. Almost 40 percent of responses indicated that paper records were utilized. Of the computerized systems, the most common in the NASS sample was Quickbooks™ which is a general cash/accrual system not designed for agriculture and without support specific to agriculture. Quickbooks™ was also mentioned by a number of Agribusiness and University clients. A significant number of operations in all three samples also mentioned using a spreadsheet for record keeping.

Table 6 presents the reasons that the current financial record-keeping system was chosen. The three most common reasons the current system was selected in the NASS sample were convenience, ease of use and price. Ignoring the catch-all “other” category, the most common reasons in the Agribusiness sample were convenience, ease of use, and relationship with the provider. University clients indicated that the payroll system (two thirds of respondents selected this) was the reason they chose the system followed by the depreciation schedule and convenience.

Both the University and Agribusiness clients indicated that relationship with provider was much more important to them in selecting a record system than the general population did. Similarly, system support—both phone and on-farm—was more important to those clients than the general farm population. Perhaps reflecting the value that University and Agribusiness clients felt they received from their systems, price was a less important factor than in the general farm population.

Many aspects of the current record system were collected for analysis. Table 7 describes the cost of the system with two terms: the initial investment and the annual fee. Many systems with support and updates charge an annual fee. The average initial cost was remarkably similar across all three groups—being \$600 to 700. Of course, there was a tremendous amount of variation in these values as the standard deviation and range from minimum to maximum indicate. There were a few greenhouses and large poultry and hog operations in the NASS sample that contributed to the high average value. The summary statistics in this case include the average (mean) as well as the median. The median indicates the value at which one-half of the observations are below and one-half above. The fact that the median was less than the mean indicates that the distribution of

cost was skewed with many values less than the mean and a few large values. As expected since they were on a more uniform system, the variation of cost was less in the University and Agribusiness populations.

The annual fees paid were much higher for the University clients than either of the other two groups. In fact, the median annual fee value of the NASS group was zero. This occurred because a number of the NASS farmers were on systems that only required a one-time fee. Recall that this group cited price as an important factor much more frequently than did the University or Agribusiness clients.

The current age of the system University clients were using was more than 16 years. This probably reflects the presence of many paper systems as well as a number of computerized systems still using a DOS computer. In contrast, the average system age for the Agribusiness and NASS populations was 7.2 and 8.0 years, respectively. The expected life of the system results from the University might seem to indicate that the system should have already been replaced. Perhaps the question was interpreted as how many more years the system was expected to last.

We were also interested in the attributes of the current system. University and Agribusiness clients indicated that home installation and training were common while that was not the case in the NASS population (Table 8). Similarly, having a system designed for agriculture and with support available familiar with agricultural tax law were very important for University clients and Agribusiness clients but much less so for the NASS random sample.

The importance of system options or attributes was measured using the same Lichert scale as above (1=very important, ..., 5=not important). A weighted average of

the options by the survey sample is displayed in Table 9. Most of the averages are around three indicating a fairly neutral average although University clients rated most options as more important than the other two sets of respondents. The average scores, however, mask the fact that many of the responses were bimodal. That is, the respondents either found that option very important or not important with less response actually neutral. An example of the bimodal response in the NASS sample was that 34% thought a check-writer option was very important while 35% thought it was not important. University clients also exhibited some bimodal responses but were fairly consistent in thinking that support and the depreciation schedule were important. Clearly, there are heterogeneous demand preferences in the farm population that might be satisfied with specifically tailored farm financial record systems.

We also examined the importance of the uses of farm financial records. The average scores were very similar across groups (Table 10). Tax compliance was the most important use along with farm management and evaluating farm performance. Less important were enterprise analysis and dividing income.

The survey also inquired about the frequency with which reports were generated using the farm financial records (Tables 11-13). The NASS sample indicated that they were fairly diligent about producing a balance sheet and income statement annually. They were less interested in producing enterprise or farm budgets. Results in the other samples were similar with slightly higher percentages of respondents annually producing balance sheets, income and cash flow statements.

The reports that were generated were commonly utilized for tax preparation and to analyze whole farm profitability (Table 14). The University and Agribusiness clients were more likely to use the reports to compare their performance to other farms.

Conclusions

The University and Agribusiness clientele were, in many ways, much like the general farm population elicited in the random NASS sample. One notable difference was that University and Agribusiness clients were more likely to have livestock enterprises. This project assessed Michigan farm demand for financial record-keeping systems crucial to farm performance and viability. Convenience and ease of use were more important attributes than price. From the results, it was very clear that both University and Agribusiness financial record-keeping programs had done a good job of showing value of a farm cash/accrual systems for their clients. Both groups also valued the relationship with the program provider. When thinking about potential market expansion, only about 10 percent of respondents indicated that they might be in the market for a new system. These results require more detailed analysis to segment the market and determine who in the NASS set were potential University or Agribusiness clients. In the long-run, the University program will need to continue to reach younger operators of increasingly larger farms if it is to remain viable.

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Table 1. Operator Characteristics

		NASS	University	Agribusiness
Operator Age (years)	Average	54.6	58.2	53.4
	Std. Dev.	11.3	10.9	12.3
Operator Education (years)	Average	13.7	14.0	13.5
	Std. Dev.	1.9	1.9	1.8
Experiance at current farm	Average (years)	30.2	35.4	27.8
	Std. Dev.	13.7	13.9	13.5
Off-farm income/benefits	%	51	47	57
Retire in next 10 yrs	%	39	44	32
Transfer Plan (%)	Yes	46.0	58.1	56.8
	No, no next generation	16.7	14.2	14.8
	No, next gen. not interested	25.8	19.4	19.3
	No, farming assets	11.6	8.4	9.1

Table 2. Operation Characteristics

		NASS	University	Agribusiness
Organization (%)	Sole prop	61.0	61.3	64.7
	Partnership	9.2	13.0	13.2
	LLC	11.8	17.4	12.5
	Corp, family	15.6	7.0	8.8
	Corp, non-family	2.3	1.3	0.7
Crop enterprises	%	92	92	95
Livestock enterprises	%	44	58	59
Acres Operated	Average	908.9	820.1	1,118.1
	Std. Dev.	1,256.5	746.7	1,301.0
Acres Owned	Average	399.3	474.2	460.4
	Std. Dev.	450.7	438.7	489.1

Table 3. Crop Enterprises

		NASS	University	Agribusiness
Crops	Field crops (% with)	74.2	77.1	83.5
	Average acres	773.0	579.4	936.5
	Silages (% with)	37.1	47.9	44.6
	Average acres	118.5	201.9	170.0
	Hay (% with)	42.0	51.3	53.2
	Average acres	95.4	117.9	125.3
	Fruit (% with)	22.3	22.9	20.1
	Average acres	55.7	56.8	10.1
	Vegetables (% with)	23.9	22.5	23.9
	Average acres	105.9	43.6	42.9
	Other (% with)	26.4	17.4	20.9
	Average acres	121.5	101.4	53.7

Note the first row is the percent of respondents with that enterprise and the second row is the average acres of all respondents.

Table 4. Livestock enterprises

		NASS	University	Agribusiness
Livestock	Milk cows (% with)	23.7	37.8	30.9
	Average herd (head)	159.1	211.3	290.8
	Dairy heifers	23.7	38.6	30.2
		131.3	197.4	209.6
	Beef cows	16.9	16.5	20.1
		29.8	22.3	26.0
	Beef heifers	13.2	15.3	18.0
		13.0	7.3	10.5
	Bulls	22.7	26.3	28.8
		3.0	5.8	4.2
	Dairy steers + bull calves	20.0	22.9	23.7
		47.1	55.1	78.5
	Beef steers + bull calves	18.8	16.5	20.1
		75.2	50.7	28.4
	Hogs	11.6	14.4	15.9
		4,182.0	1,119.0	796.2
	Poultry	11.4	12.3	12.9
		35,373.3	19.5	45.9
	Horses	16.0	15.7	15.8
		4.6	3.7	8.6
	Other	9.5	9.3	9.3
		74.1	201.5	133.5

Note the first row is the percent of respondents with that enterprise and the second row is the average value of all respondents.

Table 5. Current Farm Financial Record Keeping System

System		NASS		University	Agribusiness
		(%)			
Paper record book	Responses	39.2	7.4	18.7	
	Operations	48.2	9.3	23.0	
University/Microtel	Responses	0.6	72.3	0.6	
	Operations	0.7	90.6	0.7	
FCS	Responses	2.0	0.7	43.9	
	Operations	2.5	0.8	54.0	
Quicken	Responses	7.4	2.4	6.4	
	Operations	9.0	3.0	7.9	
Quickbooks	Responses	19.6	4.7	15.8	
	Operations	24.1	5.9	19.4	
Redwing	Responses	3.3	0	1.2	
	Operations	4.1	0	1.4	
Farm Works	Responses	2.5	1.7	1.2	
	Operations	3.0	2.1	1.4	
Spreadsheet	Responses	13.7	6.8	7.0	
	Operations	16.8	8.5	8.6	
None	Responses	2.5	0	0.6	
	Operations	3.0	0	0.7	
Other	Responses	9.2	4.1	4.7	
	Operations	11.3	5.1	5.8	

Note that multiple responses were possible so that the total number of responses exceeded the number of operations. Thus the results are expressed both as a percentage of responses and percentage of operations.

Table 6. Reasons Respondents Chose Current Financial Record-Keeping System

		Agribusiness		
		NASS	University	
		(% of responses)		
Price	Responses	16.6	7.6	10.2
	Operations	36.8	30.1	30.2
Convenience	Responses	25.2	12.7	20.2
	Operations	55.8	50.0	59.7
Output Reports	Responses	7.3	11.5	9.3
	Operations	16.3	45.3	27.3
Depreciation Schedule	Responses	2.6	14.8	6.1
	Operations	5.7	58.5	18.0
Payroll	Responses	7.3	66.5	6.1
	Operations	16.1	26.3	18.0
Relationship with Provider	Responses	5.2	10.7	13.7
	Operations	11.5	42.4	40.3
Phone Support	Responses	3.4	11.7	8.0
	Operations	7.6	46.2	23.7
On-farm Support	Responses	2.2	9.3	7.1
	Operations	4.8	36.9	20.9
Ease of Use	Responses	25.0	12.1	16.3
	Operations	55.5	47.9	48.2
Other	Responses	5.2	2.9	29.2
	Operations	11.5	11.4	8.6

Note that multiple responses were possible so that the total number of responses exceeded the number of operations. Thus the results are expressed both as a percentage of responses and percentage of operations.

Table 7. Initial System purchase, annual cost, age and expected life

		NASS	University	Agribusines s
Initial Investment	Mean	690.81	\$ 650.43	602.70
	Std. Dev.	1,711.26	609.02	608.05
	Median	299	500	400
	Min	0	0	0
	Max	20,000	3,500	3,000
Annual fees	Mean	177.18	\$ 514.90	239.18
	Std. Dev.	385.92	282.17	451.48
	Median	0	162	15
	Min	0	0	0
	Max	3,500	2,000	2,500
Current Age	Mean	8.0	years 16.3	7.2
	Std. Dev.	6.4	11.3	7.3
	Median	7	14	4
	Min	0	0	1
	Max	30	50	30
Expected Life	Mean	9.0	years 11.2	10.1
	Std. Dev.	9.3	8.3	9.3
	Median	5	10	8
	Min	0	1	1
	Max	75	50	50

Table 8. Current system attributes

		NASS	University	Agribusinesses
		%		
Home installation	% yes	37	69	62
Training	% yes	33	87	58
Phone Support	% yes	65	96	76
Ag knowledge	% yes	47	97	78
	% important	58	95	86
Ag tax knowledge	% yes	41	95	76
	% important	51	89	84
Familiar support	% important	63	95	94

Table 9. Importance of System Options, Average Score

	NASS	University	Agribusinesses
Check writer	3.01	2.77	3.23
Payroll	3.21	2.79	3.31
Farm Depreciation Schedule	3.02	1.54	2.39
Enterprising	3.48	3.33	3.20
Installation and Training	3.26	2.20	2.85
Phone Support	3.20	1.81	2.37
Benchmark Reports	3.22	2.58	2.72
Affiliation with University or Farm Organization	3.99	2.53	3.60

Note: 1=very important, ..., 5= not important.

Table 10. Importance of Uses of Farm Financial Records

	NASS	University	Agribusiness
Farm management and decision making	1.85	1.48	1.73
Provide information to lenders	2.43	1.94	1.93
Evaluating farm performance	1.96	1.71	1.82
Tax compliance	1.69	1.29	1.43
Dividing income among partners	3.90	3.56	3.77
Enterprise analysis	3.07	3.11	2.85

Note: 1=very important,..., 5= not important.

Table 11. Frequency at which reports are generated, NASS sample

	At least once per year	Less than once per year (%)	Never
Balance Sheets	76.2	8.0	15.8
Income Statement	81.5	6.5	12.0
Cash Flow Statement	66.0	11.0	23.0
Enterprise Budgets	31.7	15.9	52.4
Farm Budget	47.3	13.9	38.7
Statement of Owner's Equity	57.6	12.9	29.5

Table 12. Frequency at which reports are generated, University sample

	At least once per year	Less than once per year (%)	Never
Balance Sheets	88.9	4.4	6.7
Income Statement	92.6	3.4	3.9
Cash Flow Statement	90.4	3.5	6.1
Enterprise Budgets	35.0	11.8	53.2
Farm Budget	53.8	14.9	31.3
Statement of Owner's Equity	67.4	12.1	20.5

Table 13. Frequency at which reports are generated, Agribusiness sample

	At least once per year	Less than once per year (%)	Never
Balance Sheets	88.5	6.1	5.3
Income Statement	88.4	6.2	5.4
Cash Flow Statement	75.6	12.6	11.8
Enterprise Budgets	40.2	12.0	4.8
Farm Budget	52.5	10.0	37.5
Statement of Owner's Equity	63.4	15.4	21.1

Table 14. Utilization of reports generated with farm financial records

	NASS	University	Agribusiness
	(% 'yes' responses)		
For tax preparation	92.5	98.3	97.0
To satisfy lenders	65.8	80.3	80.3
To analyze whole farm profitability	76.6	91.5	77.4
To analyze enterprise profitability	47.1	43.7	50.0
To calculate cost of production	68.2	79.5	72.6
To compare performance to other farms	15.7	38.3	24.6
To monitor cash flow	65.4	81.7	72.0
To monitor inventories	35.2	39.8	39.5
To make enterprise decisions	54.9	48.0	56.3