

2000

Farming in Wisconsin at the End of the Century: Results of the 1999 Wisconsin Farm Poll

Douglas B. Jackson-Smith
Utah State University

S. Moon

M. Ostrom

B. Barham

Follow this and additional works at: http://digitalcommons.usu.edu/sswa_facpubs

 Part of the [Anthropology Commons](#), [Social Work Commons](#), and the [Sociology Commons](#)

Recommended Citation

Jackson-Smith, D. B., S. Moon, M. Ostrom, and B. Barham. 2000. Farming in Wisconsin at the End of the Century: Results of the 1999 Wisconsin Farm Poll. PATS Research Summary No. 4. Madison: Program on Agricultural Technology Studies, University of Wisconsin, March. <http://www.pats.wisc.edu/pubs/50>

This Report is brought to you for free and open access by the Sociology, Social Work and Anthropology at DigitalCommons@USU. It has been accepted for inclusion in SSWA Faculty Publications by an authorized administrator of DigitalCommons@USU. For more information, please contact dylan.burns@usu.edu.



Wisconsin Farm Research Summary

No. 4, March, 2000

Summaries of research from the
Program on Agricultural Technology Studies

Farming in Wisconsin at the End of the Century: Results of the 1999 Wisconsin Farm Poll

Douglas Jackson-Smith, Sunung Moon, Marcia Ostrom, and Brad Barham

Introduction

Farming in Wisconsin has undergone considerable change in the last few decades. U.S. Census statistics suggest that the state lost almost 13 percent of its farms and over 10 percent of its farmland between 1987-1997. The decline in farm numbers was particularly severe for mid-sized commercial livestock farms. During this period, the number of hog farms dropped by almost 60 percent, dairy farms fell by 40 percent, and farms with any harvested cropland declined by more than 20 percent (Buttel, 1999). Meanwhile, when dairy and hog farm number declines are removed from the equation, census results show that there was actually significant *growth* in part-time and hobby farm numbers during the 1990s in Wisconsin.

While the periodic Census of Agriculture provides some key insights into the long-term trends in the Wisconsin farm sector, the Census asks relatively few questions about a number of important topics. Specifically, there is little information gathered about the use of different agricultural technologies or management practices. In addition, despite the fact that most Wisconsin farms are run as family businesses, there is virtually no information collected about members of the farm household (other than the lead operator) or the household's involvement in off-farm as well as farming activities. Finally, the Census asks no questions about the opinions or views of Wisconsin farmers concerning important public policy questions.

To address this gap, and to understand better the current profile of the remaining farm operations in Wisconsin, the Program on Agricultural Technology Studies at the University of Wisconsin-Madison conducted a statewide mail survey of over 3,200 farms in the spring of 1999. Approximately half of

all eligible farms who received copies of the 1999 Wisconsin Farm Poll returned completed questionnaires. Although we have used some of the initial results in research publications and presentations to university, extension, and public audiences, this report is our first comprehensive summary of the results of this study.

Methods

Roughly half of those contacted in the study were dairy farmers randomly selected from the list of licensed dairy farms maintained by the Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP). Since all dairy farm operations have to receive a license from the state to sell their milk, this list is considered quite accurate and up-to-date. The other half of our sample was randomly drawn from the master list of all farms compiled by the Wisconsin Agricultural Statistics Service (WASS), a division of the USDA based at DATCP. The WASS subsample was targeted at all non-dairy farms that raised cattle, hogs, sheep, poultry, hay, corn, soybeans, wheat, small grains, tobacco, and other minor crops or livestock. Specifically, aside from excluding all known dairy farms, the WASS sample of non-dairy operations did not include potato growers, nurseries and greenhouses, and Christmas tree farms.

Surveys were returned by roughly half of all eligible farms contacted during the spring survey, for a total of 1,407 respondents.¹ Because we had selected a disproportionate number of dairy operations in our original sample (in order to do some more detailed analysis of trends in dairy farming in the 1990s), we had to weight the sample observations in such a way that they more closely approximated

the original sample frame (the WASS list) and the proportions found in Wisconsin's farm population as a whole.²

The resulting weighted sample (see Table 1) consisted of roughly 41 percent dairy operations, 19 percent cattle and hog operations (including a small number of dairy breeding stock farms that did not milk cows), 17 percent cash grain farms (who received most of their gross farm income from the sale of corn or soybeans), and roughly 23 percent other types of farms (a very diverse group that included many part-time farms as well as a few very large commercial fruit or vegetable operations).

The proportions of sampled farms in these commodity groups are reasonably close to those found in the 1997 Census of Agriculture – particularly for cash grain and beef/hog farms – though we overrepresent dairy farms and undercount the “other” types of farms (U.S.D.A, 1999). This is largely due to the fact that there are very good lists of dairy farms and fairly complete lists of cash grain and beef/hog farms available to the WASS staff. However, the large group of part-time or small-scale farms that produce speciality crops or livestock species are much more difficult to track. Readers should recognize that the weighted sample described in this report has some degree of bias towards larger commercial-scale farms and underrepresents smaller and less conventional types of operations.

In the tables that follow, the characteristics of farms are broken down into four major farm types (dairy farms, cattle and hog farms, cash grain farms, and all other farms). Contrasts between the responses of farms in these four groups highlight the diversity of our farm sector. The tables also include a column that summarizes the characteristics of the overall weighted sample. The results in the “all farms” column are generally representative of the population of commercial farms in the state, subject to any unknown sampling or weighting errors.

General Farm Enterprise Characteristics

Table 1 reveals the distribution of farms by commodity type in our sample. The results suggest that most Wisconsin's farms are diversified enterprises that produce both crops and livestock. While farms selling milk (dairy farms) are the largest single commodity group, almost all farms (even the major livestock enterprises) raised some type of crops in 1998. In addition, 85 percent of all farms raised some type of livestock during the same year.

The size and organizational characteristics of our sampled farm operations is reported in Table 2. Here we see that the average Wisconsin farm operated roughly 250 acres in 1998, 20 percent of which they leased or rented from another landowner. Dairy and cash grain farms tend to farm more land than cattle, hog or other types of farms. They also tend to

Table 1: Profile of Respondents to the 1999 Wisconsin Farm Poll.

Characteristics	Farm Type				
	Dairy Farms	Cattle or Hog Farms ¹	Cash Grain Farms ²	All Other Farms	All Farms Combined
Number of respondents (weighted) ³	582	266	243	316	1,407
Percent of all farms in weighted sample ³	41.4	18.9	17.2	22.5	100.0
(Est. proportions in Wisconsin, 1997) ⁴	35.6	19.0	16.6	28.7	100.0
Percent who raised any crops in 1998	98.3	95.2	100.0	91.5	96.5
Percent who raised any livestock in 1998	100.0	100.0	35.6	55.5	84.8

¹ Category includes farms raising any beef, hogs, or dairy breeding stock (but who did not sell milk).

² Category includes farms receiving most of their farm income from the sale of corn, soybeans, wheat, or small grains.

³ These are the weighted numbers of respondents.

⁴ Results of 1997 Wisconsin Census of Agriculture (adjusted to include all farms with milk cows in the dairy farm category, and excluding the potato, christmas tree farms, and greenhouse, nursery, and floriculture farms). Cash grain farms include those that sold any grains in 1997.

Table 2: Farm Enterprise Characteristics of Wisconsin Farm Operations, 1999.

Characteristics	Farm Type				All Farms Combined
	Dairy Farms	Cattle or Hog Farms	Cash Grain Farms	All Other Farms	
Average acres of farmland operated (total)	326.3	189.3	282.6	143.4	252.7
Percent of all operated acres in the sample	53.8	14.2	19.5	12.4	100.0
Tenure Status					
Average acres owned	224.2	152.3	191.6	124.4	183.0
Average acres rented	101.9	37.0	92.1	19.1	69.8
Average share of land operated that is owned	72.7	82.4	75.5	86.7	78.1
Percent renting ANY of the land they operate	70.4	44.0	45.7	28.8	52.0
Percent renting ALL of the land they operate	6.2	5.4	9.4	5.6	6.5
Farms by gross sales class					
Under \$20,000	3.1	67.8	46.4	74.7	38.7
\$20,000 - \$49,999	13.1	18.8	27.0	11.1	16.1
\$50,000 - \$99,999	18.3	7.1	14.0	6.1	12.7
\$100,000 - \$249,999	47.4	5.5	7.7	3.7	23.0
\$250,000 or more	18.1	0.8	5.0	4.4	9.5
Totals ¹	100.0	100.0	100.1	100.0	100.0
Farms by organizational type					
Individual or sole proprietor	72.8	81.9	73.0	78.1	75.8
Family partnership	18.5	13.2	19.7	12.2	16.3
Family corporation	5.7	2.3	4.3	4.8	4.6
Non-family partnership or corporation	0.9	2.7	1.3	1.6	1.4
Other	2.1	0.0	1.7	3.2	1.9
Totals ¹	100.0	100.1	100.0	99.9	100.0
Ratio of farm debts to value of farm assets					
Zero debt	23.9	53.1	50.9	55.3	41.2
Debts less than 10% of asset values	14.6	15.8	13.4	13.9	14.5
Debts between 10% and 40% of asset values	43.8	24.2	30.8	22.7	33.0
Debts over 40% of asset values	17.7	6.9	4.9	8.1	11.3
Totals ¹	100.0	100.0	100.0	100.0	100.0
Share of farm labor done by farm household					
All	63.2	77.7	71.1	66.2	68.0
More than half	31.9	17.4	18.3	24.1	25.1
Less than half	4.9	4.9	10.6	9.6	6.9
Totals ¹	100.0	100.0	100.0	99.9	100.0

¹ Totals may not add up to 100.0 due to rounding.

rent a higher proportion of their operated acreage. While roughly half of all farms rent at least some farmland, only 6.5 percent of our sample farmers are full tenants (owning none of the land they operate). In other words, most farms tend to maintain a home farm base that they own, and then rent additional land as they expand their operations.

Dairy farming tends to generate considerably more gross farm sales than most other types of farms. Roughly two-thirds of all dairy farms had gross sales of over \$100,000 in 1998. Meanwhile, almost half of cash grain farms, and between 68-75 percent of cattle/hog or “other” types of farms had gross sales of under \$20,000. As noted above, Wisconsin has

lost dairy farms in the 1990s at a significantly higher rate than other types of farming operations. As dairy farms are replaced by other types of farms (beef farms, cash grain operations, hay farms, or other part-time farms), the total amount of economic activity generated from the farming enterprise is likely to shrink considerably. This raises serious questions for the viability of rural agricultural input and processing businesses, as well as the farm families who are attempting to make a living from farming.

Most farms in Wisconsin are operated as single family, sole-proprietorship businesses. In addition, there are an increasing number of formal farm partnerships and corporations in the state (roughly 22 percent of our sample), though most of these are owned and managed by family members. There are relatively few differences in the form of business organization across farm types in our sample.

Perhaps because of the higher levels of investment required, dairy farms report notably higher levels of indebtedness than any of the other farm types. While the majority of the non-dairy operations reported having no farm debt at all, over 60 percent of dairy farms had debts that exceeded 10 percent of their assets (and 18 percent had debt-to-asset ratios greater than 40%). Overall, a relatively small fraction of Wisconsin's farming operations (11.3 percent) appears to have debt levels that are beginning to approach levels of concern to some farm economists (40%), and even these operations may be on sound footing if they have adequate cash flow to service their debts.

The last section of Table 2 also shows that two-thirds of farms in our sample rely completely on family members for their farm labor force, and an additional 25 percent rely mainly on farm household labor. Dairy farms were the most likely to use at least some non-family laborers, though the cash grain and "other" farms were the most likely to rely principally on nonfamily members to complete farm tasks.

Crop and Livestock Enterprise Characteristics

As mentioned above, virtually all farms in Wisconsin raise at least some type of crop on their farm. The results in Table 3 suggest that roughly 80 percent of all land on farms in the sample was cropland (the rest would be woods, wetlands, or land

used for barnyards and buildings). Cropland includes land planted to row crops and forages, as well as many types of intensively managed pastures. Dairy and cash grain farms tend to operate significantly more cropland (between 242 and 276 acres in 1998) than do cattle/hog or "other" types of operations. Though they rely principally on the sale of milk for their farm income, dairy farmers apparently control the vast majority of cropland in the state, operating almost 60 percent of total cropland reported by all farms in our sample.

Most dairy and cattle/hog operations feed most of their crops to their livestock. While almost all grew some crops, only 30 percent of dairy farms reported selling any crops at all in 1998. Conversely, virtually all of the cash grain producers reported crop sales.³ Among those raising crops in Wisconsin, roughly 7 percent reported selling crops under a marketing contract arrangement.⁴ This was highest among the cash grain farms, where 18 percent reported marketing contracts. The survey results suggest that direct marketing of crops to consumers is relatively common. Almost a third of cash grain farms, and well over half of the "other" types of farms reported some direct consumer sales in 1998.⁵

Hay and corn are the most widely grown crops among farmers in our sample, with over 80 percent growing some hay and 77 percent growing corn. Almost half of the farms raised small grains (oats or barley) and 28 percent grew soybeans. Among livestock farm operators, forage production is nearly universal, and 89 percent of dairy farmers grew corn in 1998. Most cash grain farms grew both corn and soybeans, and a majority also raised hay.

The results in the bottom half of Table 3 describe livestock production practices on sample farms. While it is obvious that dairy and cattle/hog farms all raise livestock, it is noteworthy that roughly a third of the cash grain operations and over half of the "other" farms also have livestock enterprises. Very few farms (2.1 percent) raised livestock under a production contract arrangement in 1998.⁶ Interestingly, the cash grain farms with livestock were more likely to be raising animals under a production contract than were the beef and hog farmers. Direct marketing of livestock products to consumers is relatively common, being reported by over 20 percent of the farmers with livestock in our sample.⁷ Dairy farms were notably less likely to direct market livestock products, while almost 40 percent of the

Table 3: Crop and Livestock Enterprises

Characteristics	Farm Type				All Farms Combined
	Dairy Farms	Cattle or Hog Farms	Cash Grain Farms	All Other Farms	
<i>Crop Production</i>					
Percent raising any crops	98.3	95.2	100.0	91.5	96.5
Mean acres of cropland planted in 1998 ¹	276.1	99.5	241.7	90.9	197.8
Percent who sell any crops ¹	30.1	34.0	93.7	71.1	50.3
Percent who have a crop marketing contract ¹	4.2	1.2	18.1	7.8	6.8
Percent who direct market crops ¹	11.3	17.5	31.0	54.4	24.8
Percent raising various crops ¹					
Hay	90.5	86.9	57.5	72.1	83.0
Corn	88.5	60.6	89.7	40.1	77.0
Oats, barley or small grains	58.5	39.9	28.2	29.7	47.5
Soybeans	25.6	14.1	71.8	17.6	28.4
<i>Livestock Production</i>					
Percent raising any livestock	100.0	100.0	35.6	55.5	84.8
Percent who produce livestock on contract ²	1.0	2.3	5.1	4.5	2.1
Percent who direct-market livestock products to consumers ²	9.5	29.5	30.8	41.4	20.6
<i>Manure and nutrient management practices²</i>					
Put directly in spreader/spread daily	60.5	13.3	14.7	17.4	39.7
Leave manure in buildings	1.9	42.4	54.7	29.0	19.2
Pile manure on ground or unlined basin	8.1	25.9	17.3	23.2	15.2
Store in lined structure ³	26.0	3.9	5.3	11.6	17.2
Other	3.4	14.5	8.0	18.7	8.6
Totals ⁴	99.9	100.0	100.0	100.0	100.0
Has a nutrient management plan	24.7	10.4	9.0	16.0	18.8
Found nutrient management plan useful ⁵	90.1	100.0	85.7	100.0	92.5

¹ Percent of those who raise any crops.

² Percent of those who raise any livestock.

³ Includes concrete pit, slurry system and clay lined basin.

⁴ Totals may not add up to 100.0 due to rounding.

⁵ Percent of those with a nutrient management plan. Includes those who found plan "somewhat useful" of "very useful."

“other” farms were conducting direct marketing of meat.

The use of various manure and nutrient management practices among farms that raised livestock is summarized at the bottom of Table 3. It is clear that the most common practices are to either put manure directly in the spreader and spread daily on farm fields (done by 40 percent of livestock farms) or to leave manure in the buildings or in piles on the ground until it can be taken out to the fields in the spring or fall (practices by 19 percent of livestock farms). Dairy farmers are much more likely to use a

daily haul system (over 60 percent used this system), while other kinds of livestock farms mostly leave manure in buildings or pile it on the ground or in an unlined storage basin.

Roughly 17 percent of all farms with livestock use a lined manure storage facility. Lined storage facilities are most common among the dairy farmers, and relatively rare among other types of farms (though the largest hog farms and most of the big poultry farms in our sample use some type of lined storage).

Finally, the survey results suggest that 19 percent of Wisconsin livestock farms currently have a nutrient management plan. Nutrient management plans are used to inventory the nutrients available in manure and commercial fertilizer on a farm and help outline strategies for using them in an optimum fashion to meet crop nutrient needs. These plans are increasingly being required by state and federal regulators as one way to reduce non-point nutrient pollution from agricultural activities. However, the relatively low rate of adoption of nutrient management plans suggest that there is considerable work remaining for those assisting farmers in writing these plans. The good news is that virtually all of those farms that did have a nutrient management plan found that plan to be useful or very useful in their farming operation.

Use of Various Agricultural Technologies

The 1999 Wisconsin Farm Poll asked a number of questions about the use of a range of farm technologies and management practices.⁸ The result in Table 4 provide an overview of the types of corn production practices used by Wisconsin farmers that grew corn in 1998. Initially, it is worth noting that almost three quarters of all the farms in our sample grew corn for grain or silage in 1998. Dairy farms were most likely to be growing corn (95 percent) while most cash grain farms (83 percent) and cattle/hog farms (66 percent) also grew corn. Only 42 percent of the “other” farms reported growing corn in 1998.

Among those growing corn, almost two-thirds reported the use of traditional moldboard

Table 4: Use of Selected Corn Production Practices

Characteristics	Farm Type				All Farms Combined
	Dairy Farms	Cattle or Hog Farms	Cash Grain Farms	All Other Farms	
	<i>(percent of respondents)</i>				
Raises any corn for grain or silage	94.9	65.7	83.3	41.5	76.0
<i>Corn Production Practices</i>¹					
Used moldboard plow to prepare corn fields	68.5	69.8	41.8	59.8	62.7
Used no-till planting methods on corn fields	20.7	23.4	37.2	29.9	25.3
Used chemical herbicides on corn fields	89.6	86.1	91.8	88.8	89.4
Used chemical fertilizers on corn fields	83.7	87.5	90.2	88.2	86.1
Used corn insecticides	43.1	44.2	50.4	36.3	44.0
Used 30-inch row spacing on corn fields	41.0	38.5	51.1	49.7	43.5
Test soil for nitrogen before sidedressing	30.1	27.5	33.1	25.2	29.7
Spread manure on any corn fields	97.2	83.1	36.7	61.5	79.4
<i>Manure crediting practices</i>²					
Usually adjust chemical fertilizer rate based on amount of manure spread	78.6	66.8	68.0	68.3	74.7
How much do you know about the amounts of nitrogen (N) and phosphorus (P) in the manure that is spread on your cropland?					
Very good idea	19.3	12.7	26.5	23.3	19.2
Fairly good idea	45.5	46.3	47.1	39.7	45.2
Not much of an idea	35.2	41.0	26.5	37.0	35.6
Totals ³	100.0	100.0	100.1	100.0	100.0

¹ Use of specific corn production practices represents percent of respondents who grew any corn in 1998.

² Represents percent of respondents who spread any manure on their corn fields in 1998 .

plows. Conversely, only about a quarter of corn growers used no-till planting methods on their corn fields – a practice that has been widely promoted to reduce soil erosion. No-till methods are used much more frequently by cash grain farmers, but still represent a minority of this group. Livestock farmers are thought to be more skeptical of reduced tillage practices as it can make it more difficult to incorporate manure into crop fields on a timely and effective basis.

Corn production is widely known to be one of the more input-intensive crops grown in the state. The survey results confirm that most corn growers in Wisconsin used both chemical fertilizers and herbicides on their corn fields in 1998. Interestingly, less than half the of the corn growers used a corn insecticide that year. Two relatively modern corn production technologies – the use of narrow 30” row spacing in planting and tillage equipment, and the use of pre-sidedress soil testing for nitrogen were used by 44 and 30 percent of corn farmers, respectively. It is important to note that cash grain farmers were more likely to be using all of the above practices than the other types of farms.

Almost all dairy farms, and most cattle/hog farms also spread manure on their corn ground, while only a third of cash grain farms (those with any livestock, we expect) used manure as a fertilizer source. Among those using manure on their corn fields, almost 80 percent of dairy farms and two-thirds of the other types of farms said they usually reduce chemical fertilizer use based on an estimate of the nutrients present in the manure (a practice typically called “nutrient crediting”). When asked how much they know about the nutrients present in the manure they used, roughly 20 percent claimed to have a very good idea, 45 percent said they had some idea, and just over a third reported they didn’t have much of an idea.

Since the last decade has been an era in which modern information technologies have become increasingly common in the agricultural arena, the 1999 Wisconsin Farm Poll asked a number of questions about the use of computers, precision farming practices, and genetically modified crops. The results are shown in Table 5.

Over the past several years, computer use has increased dramatically among Wisconsin farm operators. In our sample, half of all farms have a computer, and a majority of all types of farm enter-

prises (except cattle and hog farms) own and use a computer. However, the mere presence of a computer on the farm (or in the farm household) does not necessarily imply that it is used for the farm business. Additional survey questions suggest that less than 30 percent of the farms in our sample actually use a computer for managing farm records, and 19 percent used a computer to access the internet for farm information. While these numbers are considerably higher than reported in previous PATS surveys in recent years, most farmers do not yet use computer software, email lists, or web pages to manage their farm records or gather market or technical information for their farming operations.

Farmers were also asked about their familiarity with and use of precision-farming practices. In the survey, precision-farming was defined as “a way of managing fields or specific areas within fields through the use of advanced computer information systems, often including ‘global positioning systems.’” As shown in Table 5, a slight majority of Wisconsin farmers are still unfamiliar with precision-farming, and most of those who have heard of such practices are only somewhat familiar with what they entail. In our sample, 3.5 percent of farms reported they are currently using some type of precision-farming practice, and another 6.1 percent said that they plan to be using precision-farming over the next 5 years.

We asked those who were either currently using or planning to use precision-farming to indicate which types of practices they were likely to use. The results suggest that soil sampling to map fertility in fields is the most common (used by 3.2 percent of all farms), while the use of yield monitors and variable rate fertilizer applications were used by just over 2 percent of all farmers. Variable rate pesticide applications were the least commonly reported uses of precision-farming.

A similar set of questions were asked about the use of genetically engineered crops – often referred to as GMOs, or genetically modified organisms – in Wisconsin. Published reports suggest that there are two major categories of GMOs used in the state: (a) Bt-corn, a variety which has a gene inserted that produces a naturally occurring pesticide to prevent European corn borer damage; and (b) herbicide-tolerant corn or soybeans, which have genes inserted that give crops some resistance to the use of post-emergence herbicides, like Liberty® or Round-

Table 5: Use of Computers, Precision Farming, and Genetically Modified Crops

		Farm Type				All Farms Combined
		Dairy Farms	Cattle or Hog Farms	Cash Grain Farms	All Other Farms	
<i>(percent of respondents)</i>						
Computer usage						
	Owns a computer	50.4	46.3	52.3	50.8	50.0
	Uses a computer to manage farm records	31.5	17.6	26.3	27.9	27.2
	Accesses the internet for farm information	19.5	14.4	22.7	20.1	19.2
Precision farming techniques¹						
Familiarity with the use of precision farming:						
	Very familiar	5.0	5.3	7.9	5.5	5.6
	Somewhat familiar	43.2	29.1	47.8	31.3	38.9
	Not familiar	51.8	65.6	44.3	63.3	55.5
	Totals ²	100.0	100.0	100.0	100.1	100.0
Current or planned use of precision farming ³						
	Don't use and have no plans to use precision farming	85.0	94.2	85.7	86.8	87.3
	Precision farming can't be used for crops we grow	2.3	1.7	2.8	6.4	3.1
	Currently use precision farming techniques	3.1	1.2	6.9	3.8	3.5
	Plan to use precision farming in next 5 years	9.5	2.9	4.6	3.0	6.1
	Totals ²	99.9	100.0	100.0	100.0	100.0
Specific examples of precision farming practices ⁴						
	Use soil sampling to map fertility variation in fields	(n/a)	4.0	8.4	4.2	3.2
	Use yield monitoring to map crop yield variability	(n/a)	1.1	9.0	2.6	2.4
	Use variable rate fertilizer applications	(n/a)	2.3	4.5	4.2	2.2
	Use variable rate pesticide applications	(n/a)	0.6	1.9	3.2	1.2
Use of genetically modified crops						
	Grew a Bt corn variety in 1998 ²	19.9	9.2	23.2	4.9	15.4
	Planted any herbicide-tolerant crop varieties on farm in 1998 ³	10.4	10.1	27.6	9.5	12.9

¹ Represents percent of all those raising crops

² Percent of respondents who grew any corn in 1998.

³ Percent of all respondents who grew any soybeans or corn; includes either herbicide resistant corn or soybean varieties.

⁴ Question asked of those who currently use or who plan to use precision farming. This was not asked of any dairy farmers. As a result, totals for all farms combined only reflects the percent of non-dairy operations.

Up®. The survey results suggest that roughly 13-15 percent of Wisconsin farmers used GMOs in 1998. Bt-corn was more common than herbicide-tolerant varieties among dairy farmers, while the reverse was true for the other types of farms in our sample. Cash grain farms were the most likely to be using GMOs, with roughly a third raising either Bt-corn or herbicide-tolerant varieties.

Farm Operator and Household Characteristics

As noted above, conventional agricultural statistics available from the state and federal government typically focus exclusively on the characteristics of farm businesses (or the overall performance of the farm sector). The few demographic questions in the Census of Agriculture examine characteristics of

the “lead” farm operator, but do not report any information about other members of the farm business or household. However, farm decision-making about the use of new technologies, the expansion or contraction of a farm business, or the transfer of a farm to a next generation are all economic decisions that are influenced by household objectives. More importantly, the survival of most farms has come to depend as much on the availability and quality of off-

farm employment opportunities as it does on the general agricultural economy.

To explore these questions, we asked a number of questions on the 1999 Wisconsin Farm Poll that help describe the social and demographic characteristics of farmers and farm households. The results are shared in Table 6.

Table 6: Farm Operator and Household Characteristics

	Farm Type				All Farms Combined
	Dairy Farms	Cattle or Hog Farms	Cash Grain Farms	All Other Farms	
<i>Age and farm background</i>					
Average age of principal operator (years)	46.8	54.0	55.6	54.6	51.4
Average age when first become a farm operator (years)	22.7	26.6	26.5	28.3	25.4
Average age when took over this farm (years)	27.5	30.6	31.1	32.5	29.8
Operators by age group: (percent)					
Under 40 years	28.6	16.0	14.7	11.8	22.4
40 to 49 years	34.3	22.7	18.2	25.8	29.3
50 to 59 years	21.9	26.3	28.8	27.5	24.3
60 years and over	15.2	35.1	38.2	34.9	24.1
Totals	100.0	100.1	99.9	100.0	100.1
Operator's parents farmed when in high school	89.8	74.7	86.6	69.3	81.8
Current farm was originally owned by parents	64.2	40.0	55.3	40.6	52.8
<i>Household characteristics</i>					
Percent respondents who are married	82.5	82.4	84.3	82.9	82.9
Percent who have any children	83.0	83.2	83.2	82.5	82.9
Percent with children living at home	80.6	63.3	50.9	53.8	66.7
<i>Education level of operator</i>					
Some high school	12.9	9.5	9.4	8.0	10.6
High school diploma	48.5	35.1	39.7	34.9	41.4
Some college or trade school	22.8	27.5	30.8	27.2	26.0
2-year or 4-year college degree	13.6	16.8	11.5	15.7	14.3
Post graduate degree or course work	2.3	11.1	8.5	14.1	7.7
Totals	100.1	100.0	99.9	99.9	100.0
<i>Participation in off-farm employment</i>					
Operator	15.1	67.3	63.2	62.5	43.7
Spouse ¹	40.5	58.3	52.1	50.5	48.0
Either or both ¹	48.3	77.8	72.2	69.6	62.8
<i>Proportion of total household income from farming</i>					
All of income from farming	48.9	8.6	12.3	7.5	25.9
More than half from farming	33.7	6.3	7.9	9.7	18.8
Evenly split between farm and off-farm	9.1	7.8	6.1	7.1	7.9
Most of income from off-farm sources	8.4	77.3	73.7	75.6	47.4
Totals ²	100.1	100.0	100.0	99.9	100.0

¹ Percent of all responding farm households.

² Totals may not equal 100 due to rounding.

The average age of farm operators in our sample is 51.4 years old (quite close to the estimate of 52.2 in the 1997 Census). Dairy farmers tend to be significantly younger than operators on other types of farms. Over half of dairy farmers were under 50 years old, while the majority of all other types of farm operators were over 50 at the time of the survey. This is likely related to the fact that as dairy farmers reach the later stages of their farming careers, they are less likely to keep milking cows, but stay in farming with less labor-intensive types of enterprises. Dairy farmers were also likely to begin farming at a younger age, and to take over their current farm operation several years earlier than those in the other categories.

Most Wisconsin farm operators grew up on a farm. Over 80 percent had parents that were farming when they were in high school. Dairy and cash grain farmers are significantly more likely to have farm backgrounds than cattle/hog or “other” farms. Just over half of all farmers in the sample were currently operating farms that had originally been owned by their parents. This was most common on dairy farms (where nearly two-thirds are on the “family farm”).

Roughly 4 out of 5 of the respondents were married and/or had children at the time of the survey. Because they tend to be younger, and because many dairy operations are multi-generational enterprises, the dairy farmers in our sample were much more likely to have children still living at home than any of the other farm enterprises.

The educational attainment data shows that roughly half of the farmers stopped school during high school or after getting a high school diploma. Another quarter of the sample had some college or trade school training, but no college degree. Just under 8 percent of all farmers had post-graduate training. When compared across farm enterprise types, it is clear that dairy farmers have somewhat less formal education on average (despite the fact that they tend to be younger). This is consistent with the fact that they tend to start farming at a younger age than other types of farmers. The most highly educated group were the operators of the “other” types of farms.

Many state and national studies have suggested that off-farm employment is increasingly important to the survival of farm families. In our sample, farm operators were working at a regular off-farm job on roughly 44 percent of the farms, and

farm spouses were working on almost half of all farms.⁹ When you combine the two, almost two-thirds of all farms had either or both the operator and spouse working off-farm. The importance of these jobs to the farm families is even more evident in that 55 percent of Wisconsin farm households get at least half of their household income from off-farm sources, and three-quarters have at least some significant off-farm income.¹⁰

Dairy farm households are significantly less likely to have off-farm employment. Indeed, only a small percentage of dairy farm operators worked off-farm, and dairy farm spouses were notably less likely to work off-farm than spouses on other types of farms. Overall, dairy farming is the only type of farming where a significant portion of farm families are able to support themselves mainly from farm income. Moreover, even when farm income is able to pay the bills, people often seek off-farm employment for the health and retirement benefits unavailable to independent self-employed farm businesspeople.

Because of the relatively high rates of net loss in farm numbers (and the generally depressed agricultural economy), it has become commonplace to assume that most farmers are relatively unhappy with their quality of life. The results of our survey (in particular the numerous written comments we received – see Ostrom and Buttel, 1999) certainly reaffirm that farmers are increasingly frustrated by the increased cost of production and the relatively low prices they receive for their commodities. However, as shown in Table 7, it is apparent that the overwhelming majority of farm operators are somewhat or very satisfied with their family’s quality of life overall, and only a small percentage indicated that their quality of life was getting significantly worse over the last 5 years. Dairy farmers are less likely to be satisfied with their current quality of life, but their responses generally follow the same pattern as the other farm types.

The results at the bottom of Table 7 underscore the tremendous level of turnover we see in Wisconsin agriculture (see Jackson-Smith, 1999). In response to the question: “Considering your current financial situation and your age, and assuming that the current farm economic situation were to continue for the next 10 or so years, how many years would you estimate you will be able to continue farming?” roughly 11 percent said they were on the verge of

Table 7: Farm Operator Satisfaction and Future Plans

	Farm Type				All Farms Combined
	Dairy Farms	Cattle or Hog Farms	Cash Grain Farms	All Other Farms	
<i>(percent of respondents)</i>					
Satisfaction with family's current quality of life					
Very satisfied	33.7	46.6	43.5	52.9	42.2
Somewhat satisfied	46.6	42.4	44.4	37.6	43.4
Somewhat unsatisfied	13.5	6.1	9.5	7.0	9.9
Very unsatisfied	6.2	5.0	2.6	2.5	4.5
Totals ¹	100.0	100.1	100.0	100.0	100.0
Change in quality of life during the past 5 years					
Much improved	8.8	5.7	7.2	13.2	8.9
Somewhat improved	29.4	36.0	31.9	35.5	32.5
No change	41.7	44.4	43.8	35.5	41.2
Somewhat worse	15.8	8.8	14.5	14.5	13.9
Much worse	4.4	5.0	2.6	1.3	3.5
Totals ¹	100.1	99.9	100.0	100.0	100.0
Estimated years operator able to continue farming (based on financial situation)					
One year or less	9.5	14.3	16.6	8.7	11.4
2 to 5 years	23.9	27.4	23.8	18.5	23.4
6 to 10 years	19.6	9.9	9.4	7.7	13.5
Indefinitely -- enough farm income	36.6	4.8	4.9	9.8	19.4
Indefinitely -- enough off-farm income	10.4	43.7	45.3	55.4	32.4
Totals ¹	100.0	100.1	100.0	100.1	100.1

¹Totals may not equal 100 due to rounding.

quitting, and another 23 percent said they were unlikely to last more than 5 more years. It should be explained that many of those planning to leave will be doing so (at least in part) because of normal lifecycle events – like retirement or transfer of a farm to a next generation – but these responses still underscore the fact that a third of our farms at any given point in time are operating with a relatively short time horizon. Looked at from the other angle, over half of the farmers in our sample indicated that they were likely to stay in business indefinitely. Most of these were able to do this because they had enough off-farm income (and not because farm income was adequate) to keep their family afloat.

There are striking differences in the plans and expectations of dairy farmers versus farms in the other three categories. Interestingly, dairy farmers are not significantly more likely to plan to exit in the next five years than average. However, a much larger

share of dairy farmers – 36.6 percent – indicated they were likely to keep farming indefinitely because their farm was providing sufficient income to their household. Another 20 percent were planning to farm 6 to 10 more years (twice the share of the other farms), and just 10 percent expected to use off-farm income to allow them to stay in business indefinitely.

Farmer Views and Opinions on Important Farm Issues

The last three tables in this report summarize farmer responses to a wide ranging set of attitudinal questions dealing with farm policy and market issues.

The top half of table 8 presents information about the ways farmers have been affected by recent changes in farm policy or the farm economy. The results suggest that the new use-value property tax assessment law in Wisconsin is the only policy change that has had a positive impact on the majority

Table 8: Wisconsin Farmers' Views on State and Federal Farm Policy

	Farm Type				All Farms Combined
	Dairy Farms	Cattle or Hog Farms	Cash Grain Farms	All Other Farms	
<i>(percent of respondents)</i>					
<i>What kinds of impact have the following recent policy or market changes had on your farm business?</i>					
Phase-out of federal price supports for grains:					
<i>negative impact</i>	25.0	23.2	54.3	24.1	29.6
<i>not affected</i>	58.9	66.0	34.2	66.7	57.7
<i>positive impact</i>	16.1	10.8	11.5	9.2	12.8
<i>Totals¹</i>	100.0	100.0	100.0	100.0	100.1
Use-value property tax assessment for farmland:					
<i>negative impact</i>	9.1	8.9	11.5	15.6	10.9
<i>not affected</i>	32.1	37.0	33.3	41.4	35.3
<i>positive impact</i>	58.8	54.1	55.1	43.1	53.8
<i>Totals¹</i>	100.0	100.0	99.9	100.1	100.0
Restrictions on the use of Atrazine:					
<i>negative impact</i>	33.0	19.8	42.2	22.0	29.7
<i>not affected</i>	55.3	61.5	41.4	58.6	54.8
<i>positive impact</i>	11.7	18.7	16.5	19.3	15.5
<i>Totals¹</i>	100.0	100.0	100.1	99.9	100.0
Mergers among farm input suppliers:					
<i>negative impact</i>	45.0	33.9	41.5	29.2	38.8
<i>not affected</i>	40.0	53.3	43.6	59.8	47.5
<i>positive impact</i>	15.0	12.8	14.8	11.0	13.7
<i>Totals¹</i>	100.0	100.0	99.9	100.0	100.0
<i>How much do you agree with the following statements on federal farm policies?</i>					
<i>(percent who agree or strongly agree with statement)</i>					
Government agricultural policies are the primary cause of the present farm income problems.	60.1	55.9	50.6	55.6	57.6
The government should try to prevent further consolidation in the farm supply industry.	(n/a) ²	55.2	52.9	51.8	53.2
The low prices that many farmers receive shows that a federal price support program needs to be brought back.	31.8	41.8	52.4	35.6	36.4
Free trade agreements will help my farm business over the long term.	33.6	26.7	38.4	31.1	32.8
Farmers will always need a government price support program.	25.7	33.3	44.2	31.7	30.1
The phase-out of most federal farm programs will make it easier for me to improve my income.	26.1	21.9	18.0	26.0	24.5

¹Totals may not equal 100 due to rounding

² (n/a) reflects a question that was not asked on the dairy farm version of the 1999 poll. Totals for all farms combined on these questions will only reflect the total for all non-dairy enterprises.

of farmers. Meanwhile, the phase out of federal price supports for grains, as well as state efforts to restrict the use of atrazine, had negative impacts on roughly 30 percent of farms, and positive impacts on 13-16 percent of respondents. In both cases, the majority of farms said they were not substantially affected by changes in these laws. Mergers among farm input suppliers were cited as a negative development by almost 40 percent of respondents, though almost half said they were unaffected by this development. Another 14 percent of farm operators said that these input-mergers had a positive impact on their businesses.

The bottom half of Table 8 reports the percent of respondents who agreed or strongly agreed with specific statements on federal farm policies. A majority of farmers felt that government policies were the primary cause of low farm income in recent years, yet they also felt that the government should be more involved in preventing consolidation in the farm supply industry. A minority of respondents agreed with the other statements in the survey. For example, only 36 percent of respondents agreed that federal price supports should be brought back, and even fewer – 30 percent – thought that farmers would always need a price support system. Just a quarter of farm operators felt that the phase out of federal price supports would actually make it easier for them to improve their income in the coming years. Finally, only a third felt that free trade agreements were likely to help their farm business be more successful.

Responses to policy preferences were fairly similar across farms of different types, with the exception that the cash grain producers were much more supportive of a return to government price support programs. This is not too surprising as most of the beneficiaries of these programs are the farms that raise and sell important farm-program crops (like corn). Certainly the fact that Wisconsin is dominated by livestock farms – many of whom are relatively self-sufficient in grain and forage production – helps explain why they are somewhat insulated from the impacts of changes in federal price support programs. Cash grain farmers were also modestly more supportive of free-trade agreements (again, because they were more likely to rely on export markets to dispose of their products).

In recent years, land use issues in Wisconsin have become more prominent in farm policy discussions. Specifically, farmers are increasingly con-

cerned about conflict between farmers and their new nonfarm neighbors, and communities have struggled over whether or not to adopt land use policies that might restrict development on agricultural lands. In most cases, farmers are torn between their desires to protect agriculture from outside pressures, but also to retain their rights to sell their farmland at appreciably higher development prices if they decide to quit farming.

The survey asked farmers to characterize the areas where they live. In general, most farms in Wisconsin are located in areas that are already comprised of a mix of farms and nonfarm residences. Just over a third of farmers live in areas where they are mostly surrounded by other farms. Another 7 percent of the sample respondents report that they are surrounded mainly by nonfarm residential development. Similarly, about half of respondents said that the area where they live is “experiencing rapid nonfarm residential growth.” In general, dairy farms are located in areas that are more agricultural in character, and are somewhat less likely to be experiencing pressure from non-farm development than other types of farms. However, this may be a reflection of the changes in the character of farming in areas that are developing more rapidly. Anecdotal and empirical evidence suggests a pattern whereby dairy farms are being replaced by cash grain or part-time farms in areas around urban centers.

The 1999 Wisconsin Farm Poll asked whether the respondents were participating in the state Farmland Preservation Program (FPP). Specifically, the state offers significant tax credits to all owners of farmland who sign farmland preservation agreements with the state or a local government authority. The level of tax credit is highest in areas that have adopted exclusive agricultural zoning (EAZ) ordinances. The results in Table 9 suggest that roughly 27 percent of farmers were aware of being in areas covered by an EAZ ordinance. However, over 40 percent of respondents were not sure if they were in an EAZ area. Just over 30 percent of farmers reported having applied for a Farmland Preservation agreement, and almost 36 percent had claimed farmland preservation tax credits on their income taxes in the last 3 years. In general, dairy farmers were more likely to be aware of living in EAZ zones, to have applied for FPP agreements, and to have received FPP tax credits. The “other” category of farms were the least likely to be aware of or participate in these programs.

Table 9: Land Use Pressures and Attitudes

	Farm Type				All Farms Combined
	Dairy Farms	Cattle or Hog Farms	Cash Grain Farms	All Other Farms	
<i>(percent of respondents)</i>					
Description of area where farm is located					
Mostly dairy farms	38.0	19.9	18.7	20.3	27.3
Mostly non-dairy farms	7.1	10.5	14.9	7.1	9.1
Mix of non-farm residences and farms	45.5	60.9	59.1	59.2	53.8
Mostly non-farm residences	7.8	4.3	4.7	8.4	6.8
Mostly open land and forests (non-farm uses)	1.6	4.3	2.6	5.1	3.1
Totals ¹	100.0	99.9	100.0	100.1	100.1
Area around farm experiencing rapid non-farm growth	49.7	57.6	61.6	55.8	54.6
Town or county has exclusive agricultural zoning:					
Yes	30.4	25.4	28.3	22.4	27.3
No	34.4	29.2	32.1	30.4	32.1
Not sure	35.1	45.5	39.6	47.1	40.5
Totals ¹	99.9	100.1	100.0	99.9	99.9
Ever applied for Farmland Preservation Agreement:					
Yes	38.4	24.5	30.8	20.4	30.4
No	54.0	65.3	58.8	68.8	60.3
Not sure	7.6	10.2	10.4	10.8	9.3
Totals	100.0	100.0	100.0	100.0	100.0
Claimed farmland preservation tax credits in last 3 yrs:					
Yes	47.5	29.9	36.0	19.1	35.8
No	41.4	60.2	56.5	67.2	53.4
Not sure	11.2	9.8	7.5	13.7	10.9
Totals ¹	100.1	99.9	100.0	100.0	100.1
<i>Farmers' perspectives on farmland protection</i>					
<i>(percent who agree or strongly agree with statement)</i>					
Local government should restrict non-farm development in important agricultural areas.	67.9	67.9	53.6	59.3	63.5
The Wisconsin Farmland Preservation Program should be strengthened to help control "urban sprawl."	66.1	60.2	57.6	59.4	62.0
Farmers should be paid if they agree NOT to sell land for non-farm development.	58.4	54.5	68.2	63.4	60.5
The state should adopt statewide zoning to protect farms from urban encroachment.	52.8	49.2	43.0	48.7	49.5
If farmland is to be protected, farmers will need to accept restrictions on their ability to sell their land.	50.0	46.7	38.9	43.7	46.0
Farmers in my area should be allowed to sell cropland to people who want to build houses or cabins.	31.7	42.9	47.7	39.9	36.5

¹Totals may not equal 100 due to rounding

When farmers were asked about their views on a range of land use policies that have been proposed, it is apparent that there is a higher level of general support in the farming community for some type of restrictions on non-farm development than is often appreciated. For example, over 60 percent of respondents agreed that local governments should restrict development on agricultural lands and that the state FPP should be strengthened to control urban sprawl. A clear majority agreed that farmers should be compensated if they agree not to sell farmland for non-farm development. Just under half of farmers agreed that there should be statewide zoning to protect farmland, and 46 percent agreed that farmers will need to accept restrictions on their land. A surprisingly small percentage of our respondents (37 percent) agreed with the statement that “farmers in my area should be allowed to sell cropland to people who want to build houses or cabins.”

Again, dairy farmers tended to have attitudes that were somewhat distinct from the other types of farm operators. For example, dairy farmers were the most supportive of restrictions on nonfarm developments, the strengthening of state farmland preservation programs, and zoning. Conversely, dairy farmers were least likely to support the right of farmers to sell their cropland for non-farm development, and were slightly less likely to agree that farmers need to be compensated if laws restrict their rights to develop their land (though a majority of dairy farmers still agreed with this concept).

The final table in this report summarizes farmer views on some current farm and environmental issues. The top half of Table 10 reports the level of agreement with five statements about trends in farm structure. It is clear that there is widespread support for the statement that family operated farms are important for the future of rural Wisconsin. Similarly, nearly two-thirds of farmers agreed that the rise of hired labor farms might have undesirable consequences for the state. In both cases, there were few systematic differences across the various types of farm enterprises.

Only a third of the farmers in our study said that they would encourage their children to become farmers. Dairy farmers were the most likely to encourage their children to be farmers, while cash grain farmers were the most pessimistic in their outlook. A relatively small percentage of all respondents in our sample agreed that large-scale dairy

farms are either inevitable in the state or necessary to increase the competitiveness of Wisconsin agriculture. Somewhat surprisingly, there was more support for large-scale dairying among the cash grain and other non-dairy farm operators than among dairy respondents. This is consistent with results reported from a survey conducted by PATS in 1995 (see Buttel and Jackson-Smith, 1997).

With respect to environmental issues, most farmers in our study felt that current regulation of pesticides in Wisconsin is already adequate to protect the environment. However, roughly half of respondents felt that strict regulation of confinement livestock facilities is required to protect the environment. (Only a quarter of farmers felt that rules and regulations on confinement livestock facilities were already too strict.) There was relatively little support in our sample for rules that would require comprehensive nutrient management plans from all livestock operators. Similarly, a minority of respondents agreed that farmers should not be permitted to drain wetlands and plant crops on those lands. Not surprisingly, dairy farmers were least supportive of additional regulations on confinement livestock production, while cash grain farms were the most likely to agree that current pesticide regulations are adequate.

Summary and Overview

In general, the results of the 1999 Wisconsin Farm Poll paint a picture of a diverse and dynamic sector. Compared to many other states in the United States, Wisconsin still has a large number of mid-sized traditional family farms – commercial-scale farms with gross sales over \$20,000 that are also owned, managed, and worked mainly by members of the farm household (see Jackson-Smith, 1996). As of 1999, few farms are operated as nonfamily partnerships or corporations, and contract production of livestock or crops is relatively rare. This is a direct legacy of the important role family-scale dairy and cash grain farming has played over the last 60-80 years in the state. This is also reflected in the strong levels of agreement with statements that support a system of agriculture dominated by family farms.

Most of our state’s farms are diversified crop-livestock operations that still use fairly conventional technologies and management practices. Indeed, only a minority of our farmers use the latest information- and biotechnology-based agricultural

Table 10: Wisconsin Farmers' Views on Current Farm and Environmental Issues

	Farm Type				All Farms Combined
	Dairy Farms	Cattle or Hog Farms	Cash Grain Farms	All Other Farms	
<i>(percent who agree or strongly agree with statement)</i>					
Farm Issues					
Maintaining a system of family-operated farms is essential to the future of rural Wisconsin.	89.7	89.0	86.8	89.5	89.0
The replacement of smaller family farms by large-scale farms using hired labor would have undesirable economic and social consequences for Wisconsin.	60.1	67.2	65.9	56.7	61.8
I would encourage my children to become farmers.	37.9	34.4	24.6	33.3	34.0
Large-scale dairy farming, such as that in California where herds of several thousand cows are common, is inevitable in Wisconsin.	27.6	25.1	30.4	20.4	26.1
More large dairy operations and other large farms are needed to increase the competitiveness of Wisconsin agriculture.	9.6	11.7	14.1	13.8	11.7
Environmental Issues					
Current regulation of pesticides in Wisconsin is adequate to protect the health of the environment.	(n/a) ¹	55.5	75.3	51.6	59.9
Strict environmental regulation of confinement livestock facilities is needed because a few farmers will abuse the environment unless forced to do otherwise.	42.6	53.4	53.2	53.1	48.8
Farmers should not be permitted to drain wetlands and plant crops on these lands.	(n/a) ¹	38.2	42.0	45.2	42.0
Livestock farmers in Wisconsin should be required to have a comprehensive nutrient management plan.	33.0	26.3	36.3	33.4	32.4
Environmental rules and regulations and pollution laws on confinement livestock facilities have gotten too strict.	29.9	22.1	22.3	20.8	25.1

¹ (n/a) reflects a question that was not asked on the dairy farm version of the 1999 poll. Totals for all farms combined on these questions will only reflect the total for all non-dairy enterprises.

technologies. Though not shown in this report, there is a clear association between technology adoption rate and the size of farm operations. As our farms grow and modernize, there is considerable upward potential for the increased adoption of modern agricultural practices. At the same time, historical trends suggest that there will be a considerable moderate-scale family farm sector well into the future. To ensure everyone benefits from technological advances, university researchers and extension

staff in the state might want to examine innovative technologies and management strategies that are particularly appropriate for the limited labor and capital available on most of Wisconsin's farms.

There are very important differences (in enterprise scale, farm operator characteristics, and policy preferences) that distinguish dairy farms from the other types of operations. In general, dairy farms are economically larger in scale and generate

significantly more gross and net farm income than the other types of farms. Because of the higher capital investment requirements associated with milking cows, dairy farms were generally more highly leveraged than their non-dairy farm neighbors. The differences across farm types were most notable when one examines labor and household income issues. Dairy farms were more likely to have at least some regular nonfamily laborers helping out, though the demands of milking cows also meant that they were less likely to be involved in off-farm employment. Meanwhile, cash grain, cattle/hog, and “other” farms were more likely to be working off farm (and hence, many relied mainly on nonfamily help to get farmwork done).

The attitudinal question results (tables 8-10) reflect the different perspectives of operators of commercial scale farms that rely heavily on farm income for their survival, and those that have significant off-farm sources of income in their farm household. When it comes to an evaluation of state and federal farm policies, the different interests of producers of particular agricultural commodities also tend to lead to distinctive policy preferences. Cash grain farms were much more vested in the federal price support system and wary about environmental regulations that might limit crop production activities, while dairy farmers were unenthusiastic about either the reintroduction of government price supports for grains or trade liberalization policies and were most concerned about restrictions or regulations on confinement livestock production. Land use issues are clearly important to a large number of Wisconsin farmers. There was a high level of support among farmers for some types of restrictions on non-farm development on agricultural lands, and general support for a state-coordinated effort to manage urban sprawl. However, most respondents wanted to see some compensation for farmers who lose the ability to capitalize on the appreciation of their property.

References

- Buttel, F. 1999. Wisconsin Agriculture in the 1990s: Perspectives from the 1997 Census of Agriculture. PATS Research Report No. 5. Madison: Program on Agricultural Technology Studies, University of Wisconsin, October.
- Buttel, F., and D. B. Jackson-Smith. 1997. Getting Bigger? Wisconsin Farmers' Views on Livestock Expansion. PATS Research Report No. 2. Madison: Program on Agricultural Technology Studies, University of Wisconsin, October.
- Buttel, F., D. B. Jackson-Smith, B. Barham, D. Mullarkey, and L. Chen. 1999. Entry into Wisconsin Dairying: Patterns, Processes, and Policy Implications. PATS Research Report No. 4. Madison: Program on Agricultural Technology Studies, University of Wisconsin, May.
- Dillman, D. 1978. Mail and Telephone Surveys: The Total Design Method. New York: Wiley-Interscience.
- Jackson-Smith, D. B. 1994. Getting in While the Going's Tough. ATFFI Technical Report No. 1. Agricultural Technology and Family Farm Institute, University of Wisconsin: Madison, October.
- Jackson-Smith, D. B. 1996. Wisconsin Agriculture in Historical Perspective: Economic and Social Changes, 1959-1995. ATFFI Technical Report No. 4. Agricultural Technology and Family Farm Institute, University of Wisconsin: Madison, June.
- Ostrom, M. and F. Buttel. 1999. In Their Own Words: In Their Own Words: Wisconsin Farmers Talk about Dairying in the 1990's. PATS Research Report No. 3. Madison: Program on Agricultural Technology Studies, University of Wisconsin, January.
- U.S.D.A. 1999. 1997 Census of Agriculture, Volume 1: Geographic Area Series, Part 49: Wisconsin State and County data. National Agricultural Statistics Service, Washington D.C.
- WASS. 1999. 1999 Dairy Farm Facts. Madison: Wisconsin Agricultural Statistics Service, Wisconsin Department of Agriculture, Trade and Consumer Protection, June.

Endnotes

¹ While only 3 percent of the dairy farms we contacted were no longer farming, a total of 22.6 percent of the non-dairy sample farms that responded reported that they were not farming (or did not sell at least \$1,000 in 1998). Once these ineligible farms are dropped from the sample frame, we calculate an adjusted response rate of 49.3 percent for the dairy farms, and 47.0 percent for the non-dairy farms.

² The unweighted sample included 804 dairy farms and 603 non-dairy farms. We reweighted this sample in an attempt to reflect the approximate proportions of dairy and non-dairy farms in the statewide producer list maintained by Wisconsin Agricultural Statistical Service (WASS). However, since 3 percent of dairy farms, and 23 percent of the nondairy respondents did not qualify as farms in our study, we also adjusted the WASS sample frame proportions accordingly. Further details about the weighting scheme used in the study are available from the authors.

³ It is not clear why 6.3 percent of the cash grain farmers reported no sales in 1998 – particularly because they told us elsewhere on the survey that corn or soybean sales were their main source of gross farm income.

⁴ A marketing contract was defined in the survey as: “when a contractor agrees to purchase some of your crops at a price determined before planting.”

⁵ These results are considerably higher than we had expected to find, particularly among cash grain operators. The question on the survey read: “In 1998, did you sell any crops or crop products

directly to individual consumers (either through a Community-Supported Agriculture farm enterprise, or at a farmers market, roadside stand, U-pick, or other private arrangement)?”

⁶ A production contract was defined as: “when a contracting firm or individual provides some of your inputs, such as feed or animals, and requires that the livestock be raised in a certain way.”

⁷ Again, the results are much higher than expected. Here the question read, “Did you direct market any livestock products to consumers in 1998? (Direct marketing involves producers selling directly to individual consumers.)”

⁸ In this report, we focus most of our discussion on the adoption of a range of crop production practices. However, the dairy version of the survey included a large number of questions about the use of dairy production technologies and management practices. For a more detailed summary of the dairy technology survey results, see “A Profile of Wisconsin’s Dairy Industry, 1999,” by Buttel et al., 2000.

⁹ Since roughly 20 percent of farm operators are not married, the actual rate of off-farm employment among farm spouses is closer to 59 percent.

¹⁰ Some of those with off-farm income receive pensions, social security payments or other unearned income that will not be reflected as off-farm employment.

The Program on Agricultural Technology Studies is a unit of the University of Wisconsin-Madison and University of Wisconsin-Cooperative Extension. Contact us for additional copies of this report.

**Mail: 427 Lorch St., Rm. 202, UW-Madison, Madison, WI 53706
Phone: (608)265-2908 Fax: (608)265-6399 Website: <http://www.wisc.edu/pats>**

The UW-Madison provides equal opportunities in employment and programming, including Title IX requirements. If you need accommodations under the Americans with Disabilities Act to access this program, please notify the Director's office.