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## Then and Now: Ten Years of Arkansas Women in Agriculture

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Then and Now: Ten Years of Arkansas Women in Agriculture

A thesis submitted in partial fulfillment  
of the requirements for the degree of  
Agribusiness Management and Marketing

by

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May 2016  
University of Arkansas

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## Table of Contents

<b>Abstract</b> .....	3
<b>Introduction</b> .....	3
<b>Background and Literature Review</b> .....	5
<b>Materials and Methods</b> .....	8
<b>Results and Discussion</b> .....	11
Demographics of Owners and Nonowners .....	11
Attributes of Jobs that are Important.....	12
Challenges Faced in Business Activity .....	13
Decision Making Power.....	14
Roles and Role Changes.....	14
Hypothesis Testing Results.....	16
<b>Conclusion</b> .....	17
<b>Literature Cited</b> .....	19
<b>Figures</b> .....	21
<b>Tables</b> .....	22
<b>Appendixes</b> .....	39

## **Abstract**

The United States Agricultural Census show that between 2002 and 2012, the number of farm women operators in Arkansas grew 14 percent (from 19,856 to 22,637). These women operators have made up an increasingly larger percent of all farm operators in the state (from almost 29% to nearly 33%). There is little published information regarding how women's roles, challenges and factors important to their success may have changed over time. While some surveys of farm women have been conducted, these surveys are generally insufficient because data exist only for one point in time.

This research uses the first, middle and last years of survey data collected across ten years (2005-2014) at Arkansas Women in Agriculture (ARWIA) conferences to compare women's perceptions regarding: 1) their roles in agriculture, 2) the successes and challenges they face, 3) how their roles have changed over time, and 4) how that change has influenced their family lives, agriculture and the rural community. It is hoped that this set of baseline information can be useful not only to researchers and educators interested in addressing needs of local women but also in illustrating the continuing changes in women's roles and their needs and thus the need for extended research over time to address these changes.

## **Introduction**

Women contribute greatly to agricultural and rural society because of the roles they play on and off the farm. Since the early 1980s women's roles on farms have been expanding to include more decision-making and hands-on participation. According to the United States Department of Agriculture (USDA) 2012 Census, nationally there are 969,672 women operators of farms (USDA, 2015a). Of those women, 29.7 percent of them are principal operators (USDA, 2015a). Data show that between 2002 and 2012, the number of women operators in Arkansas

grew 14 percent from 19,430 to 22,228 (USDA, 2015a; USDA, 2015b). These women operators have made up an increasingly larger percent of all farm operators in the state from almost 29 percent to nearly 33 percent. The Arkansas agricultural sector contributes to the creation of over 280,000 jobs and adds \$20.1 billion in total value to state economy; therefore, the activities of Arkansas' women in agriculture are very important to the overall state economy, and are why women's roles have gained significant attention among policymakers and researchers (English, Popp, and Miller, 2014). However, little is known in Arkansas if and how agricultural women's roles, challenges and important job attributes have changed over time.

In 2005, the first Women in Agriculture conference in Arkansas was established. University of Arkansas faculty facilitated and coordinated the planning of the conference with a steering committee composed of land grant professionals, Arkansas Farm Bureau employees and representatives from the public and private sectors. Three years later, the group established itself as a private, nonprofit organization composed of volunteers with a mission to "provide education programs for women involved in agriculture in Arkansas" as well as to "provide a network with other Arkansas women involved in agricultural and rural community issues" and also to "identify new ways to balance the demands of family, community and professional lives" (Arkansas Women in Agriculture, 2016, ¶1). Since 2005 there has been a statewide conference held each year with the exception of 2013, a year when regional meetings were facilitated throughout the central, eastern, western and southern parts of the state.

Some surveys have been conducted both nationally and internationally to examine farm issues, however these surveys are generally insufficient because data exist for only one point in time. The purpose of this research is to use survey data collected at the Arkansas Women in Agriculture conferences to examine women's perceptions regarding 1) their roles on the farm, 2)

the successes and challenges they face, 3) how their roles have changed over time, and 4) how that change has influenced their family lives, agriculture and the rural community.

### **Background and Literature Review**

Women contribute largely to the agricultural economies around the world. Much focus has been placed on women's efforts in developing countries (Food and Agriculture Organization of the United Nations [FAO], 2011). Their roles vary between regions and are changing in many parts of the world, especially in areas where the agriculture industry is transforming due to economic and social forces. Many women balance several responsibilities ranging from producing agricultural crops, tending animals, processing and preparing food, working for wages in agricultural or other rural enterprises, collecting fuel and water, as well as engaging in trade and marketing in developing countries. (FAO, 2011).

The global average of the female share of the agricultural labor force is heavily dominated by Asia (FAO, 2011). In 1980, women made up approximately 45 percent of the agricultural labor force in sub-Saharan Africa. Today, this statistic has risen to almost 50 percent (FAO, 2011). In the American developing countries, the female agricultural labor shares has a much lower average than in other developing regions at just over 20 percent in 2010 (FAO, 2011). South American countries including Bolivia, Brazil, Colombia, Ecuador and Peru all dominate the average.

Back in the United States, in a 1919 excerpt from the *Missouri Ruralist*, Laura Ingalls Wilder claimed that a woman's role "is a most important factor in the success or failure of the whole farm business" (Farm Credit Administration [FCA], 2014, ¶1). The Farm Credit Administration (FCA) agreed and realized that farm loans were more likely to be repaid if women were involved, so in 1937 FCA began recognizing farm wives as equal business partners

to their husbands. In the earliest days of FCA, women joined with men across the country to establish National Farm Loan Associations (NFLA). These local organizations were responsible for providing Federal Land Bank loans to farmers. Many women who held leadership positions within Farm Credit found that collaboration with other women provided several advantages (FCA, 2014). The secretary-treasurer of an NFLA, Laura Jarmuth often “held her most successful membership and loan meetings over coffee with farmers’ wives” (FCA, 2014, ¶ 7). Women have helped with the establishment of many successful agribusiness companies throughout the years such as Farm Credit. While the increase in female association directors at Farm Credit did not occur until the 1970s and 1980s, women played essential roles in Farm Credit’s history.

In the mid-1980s, educators began to take notice of the changing role of American women in agriculture when the number of women entering farming in the U.S. was on the rise. In 1978, 104,134 women were the primary operators on farms and by 2007 that number had increased nearly 300 percent to 306,209 (Pilgeram and Amos, 2015). Despite the overall decrease of new farm operators, the number of women farm operators grew 30 percent between 2002 and 2007 (U.S. Census Bureau, 2007). Much of this growth is attributed to women farming outside the traditionally male dominated field of conventional U.S. agriculture (Pilgeram and Amos, 2015). Farms with female principal operators appear to have production advantages over those farms who do not (Pilgeram and Amos, 2015). The Agricultural Resource Management Survey (ARMS) data show that female operators of rural residence crop farms have an efficiency ratio of 3.14 compared to 1.40 for male principal operators.

In the U.S. women served as the principal operator on almost 11 percent of U.S. farms and as a second or third operator on more than 40 percent (ARMS, 2015). Female farm operators

make up 10.8 percent of farms and female principal operators accounted for approximately \$9.27 billion in total value of production in 2013 (Harris, Williams, and Mishra 2015). According to findings in the report titled “The Effect of Gender on Productivity Status in U.S. Agriculture”, female operators have lower total expenses than male operators, which is mostly driven by lower variable costs rather than fixed costs.

Conferences targeting agricultural women have emerged in a handful of states over the past few years. The National Women in Agriculture Association was founded and established in 2008 and now has chapters established in Oklahoma, Mississippi, Tennessee, Alabama, Michigan, Georgia, and Ohio (NWIAA.org). These programs are usually in the form of annual training workshops, conferences or campaigns. While these programs represent the first step in the right direction, many states still have not effectively identified and addressed the needs of agricultural women in their changing and challenging roles.

Today, governmental organizations and universities are developing women in agriculture programs across the nation. Former USDA Deputy Secretary Krysta Harden made it a goal to start a community for women leaders in agriculture. During fall of 2014, Harden held a White House discussion with farmers, agribusiness, academics and youth leaders about “the opportunities that exist to help advance women in agriculture to leaderships positions” (Harden, 2015, ¶ 2). On February 19, 2015, Harden announced the creation of the Women in Agriculture Mentoring Network. The network was developed to support and engaged agricultural women across all areas and to foster professional partnerships between women. Networks and organizations like such have made a difference in legislative and regulatory matters at the local, state and national levels.



While these conferences and organizations provide needed networking and training, there is still little published information in the U.S. regarding women in agriculture. While studies have been conducted to determine women's roles in business, this is the first study highlighting how agricultural women's roles have changed with time. There has been several studies similar to such completed internationally, however there has not been research like this conducted in the U.S. before now, and even more specifically, on the state level.

Albright and Popp (2007) analyzed survey data from the 2005, 2006 and 2007 Arkansas Women in Agriculture conferences. Their research compared roles, challenges and successes of those women who were principal operators of a farm, ranch or agribusiness to those agriculture women who were not principal operators. Their findings show that differences exist between principal operators and other operators in the perceptions regarding business expectations, challenges and successes. Albright and Popp (2007) found strong statistical differences in problem areas such as finding and qualifying for government programs, keeping good financial records and keeping good employees. In addition, they found that 44 percent of women claimed to have a much greater role in the operation/business than they did previously (Albright and Popp, 2007). Building upon the work of Albright and Popp (2007), this research will extend the analysis comparing early, mid and recent years (2005, 2009 and 2014) data to assess if and how challenges, perceptions, roles and success have changed over time.

### **Materials and Methods**

This research used survey data collected during the nine Arkansas Women in Agriculture annual conferences that took place between 2005 and 2014 (no state-wide conference was held in 2013). These surveys were developed following methods suggested by Salant and Dillman (1994) and Dillman, Smyth and Christian (2009). The questions were tailored towards two main

parts: questions designed specifically for women who owned farms, ranches, or agribusinesses (Owners), and questions for all women attendees, whether they were farm employees or operators working in supporting industries, retired or students (Nonowners).

While some questions were revised, removed or added across the years, the surveys generally consisted of six parts: 1) type of agricultural activity, 2) role (Owner or Nonowner) in their business, 3) decision making and other responsibilities in the business, 4) factors that are important in their jobs, and 5) challenges women face at their jobs. (See Appendix 1 for an example of the survey from the 2009 conference).

All survey responses have been double entered into an excel spreadsheet and checked for accuracy. Summary statistics for the surveys' 190 variables were then generated in total across all years and by survey year. Statistical tests were conducted four ways in this study. First, tests were conducted to compare responses from **all women** across two and three consecutive years between 2005 and 2014 (ex. 2005 versus 2006; 2005 versus 2006 versus 2007) to see if responses changed across time. Next, respondents were broken into two groups. The first group consists of farm/business Owners and is referred to as "**Owners.**" The second group contains all other respondents (farm/business, educators, and others) and is referred to as "**Nonowners.**" Statistical tests were done to look for differences in responses between Owners and Nonowners. Focusing only on the subset of Owner responses, tests were conducted to compare responses across two and three consecutive years at a time for all years between 2005 and 2014 to see if responses changed across time. Finally, focusing only on the subset of Nonowners' responses, tests were conducted to compare responses across two or three consecutive years at a time for all years between 2005 and 2014 to see if responses changed across time.

Tests were conducted on questions regarding: 1) factors important to their choice of business activity (Appendix, Part B Question 1), 2) challenges women face in their agriculture-related business (Appendix, Part B Question 3), 3) the roles they hold in that business (Appendix, Question 2), 4) how those roles have changed overtime (Appendix, Part A Question 14).

Since all of the data collected from these questions are either categorical variables or ordinal variables, Chi square and Fisher's exact tests were run to determine if statistically significant differences existed in the responses. According to Waller and Johnson, "categorical data are data that can take on a discrete number of values or categories with no inherent order to the categories" (2013 ¶ 5). Some examples of categorical variable include: gender (male or female), ethnic background (African American, Native American, Caucasian, Asian), and yes or no variables. Ordinal variables contain a "discrete number of values but the values have some inherent order to them" (Waller & Johnson, 2013 ¶ 6). For example, Likert scale variables (strongly disagree, disagree, neutral, agree, and strongly agree) are ordinal variables (Waller & Johnson, 2013). There is inherent knowledge that "strongly agree" is a higher level of agreement than "agree". According to Waller, "a Chi square test is used to examine the association between categorical variables" and "the levels of categories for each variable can be two or more" (Waller & Johnson, 2013 ¶ 9). The Chi square test assumes that the expected value for each cell is five or higher; however, if one or more cells has an expected frequency of five or less, the Fisher's exact test is used (UCLA: Statistical Consulting Group, 2016). It is estimated that over 3,500 individual chi or fisher's tests were run and evaluated when looking across consecutive years.

Preliminary review of the results suggested that there was no single subset of consecutive years where many of the results were significant. Therefore, in order to better explain if/how

things had changed across the ten years, the analysis refocused on only the years 2005, 2009 and 2014 (the first, middle and last year of data collection). Statistical results were run to determine if differences could be found in the answers to those same questions during those three years for all respondents, then Owners only and then Nonowners only. Results from these last set of tests are described below.

The null hypotheses tested in this research were:

- There is no significant difference in the job attributes that are important to all women, Owners and Nonowners over time; further there is no difference in the top five job attributes that are important over time across all women together, only Owners, and only Nonowners
- There is no significant difference in the challenges that are faced by all women, Owners and Nonowners over time; further there is no difference in the top five challenges that are faced over time across by all women together, only Owners, and only Nonowners
- There is no significant difference in the decisions made by all women, only Owners, and only Nonowners over time
- There is no significant difference in the change in roles for all women, only Owners, and only Nonowners over time

## **Results and Discussion**

### *Demographics of Owners and Nonowners*

Table 1 shows the number of respondents who completed the survey from 2005 through 2014. For the years 2005, 2009 and 2014 there were a total of 234 participants, approximately

39.8 percent of all the respondents across the ten years. Of those individuals who completed surveys in 2005, 2009 and 2014, 117 (50.0 percent) were Owners and 117 (50.0 percent) were Nonowners (Table 1). Other characteristics of these women are presented in Table 2. Over half (50.44 percent) of the respondent's ages ranged from 45-54 (27.63 percent) and 55-64 (22.81 percent). Only 10.48 percent had never been married, but 80.79 percent were married at the time the survey was completed. The remaining 8.74 percent were either divorced/separated or widow/widower. In total, 30.57 percent of respondents have a four year college degree and 22.27 percent had some post graduate work. Approximately 71 percent of these women had owned an agricultural production operation at some point in their lives and 50.57 percent had ever managed an agriculture production operation. The top six counties most represented include: Washington (11), Yell (11), Hempstead (9), Lonoke (8), Benton (7), and Monroe (7). Figure 1 illustrates the home counties of 2005, 2009 and 2014 survey respondents.

The grey areas signify the top six counties represented: Washington (11), Yell (11), Hempstead (9), Lonoke (8), Benton (7), and Monroe (7). The dark pink area represents counties who had women in attendance, while the white counties not highlighted did not have any attendees present at the conferences. While counties across the east, west and central portions of the state were represented with conference attendees, there were very few attendees from many of the southern/central counties.

#### *Attributes of Jobs that are Important*

All respondents were asked to indicate whether 14 job attributes were important to them in their operation/business (Tables 3-5). Table 3 shows the percentage of all respondents that strongly disagreed to strongly agreed that each attribute was important. When the agree and strongly agree answers are combined, it can be seen that three attributes – applying talents and skills directly, being involved in the community and being excited about the work – were ranked

within the top five most often cited important attributes across all three years. Further, most attributes (with the exception of not having to make key decisions) was found to be important by at least half of all respondents in most years. However, statistical tests found little differences across years for most attributes (except meeting financial needs which was cited much more often as being important by 2014 than it had been in 2009). This one statistical difference may be explained by the 2008-2009 US recession. Looking at Owners only (Table 4) shows similar results. Again, applying talents, being excited about the work and being involved in the community were often cited as important. However, this subset of women also found trying new ways of doing things and participating in environmental conservation practices to be very important in most years. No significant differences (at the  $p = 0.05$  level) were found in any of the responses. Nonowners shared many similarities with Owners, but in addition they highly valued being secure about their employment future and balancing work and free time (Table 5). The importance of providing jobs for the community ( $p = 0.0210$ ) grew significantly over time for these women.

#### *Challenges Faced in Business Activity*

All respondents were asked if they faced challenges in their business related to 13 areas (Tables 6-8). Table 6 shows the percentage of all respondents that strongly disagreed to strongly agreed whether each variable was a problem. When the agree and strongly agree answers are combined, two of these problems- keeping good employees and finding/affording a good lawyer were consistently in the top five largest problems in all three years. It should be noted that none of these variables were problems for more than 40 percent of the population in any given year and across all women, and across all women, being respected as a business woman was not a top challenge five in any year. Additionally, no statistical differences were found across years for all

women, indicating that the percentage of women facing these challenges has stayed relatively steady over time.

As when analyzing job attributes, Owners shared some of the top challenges as the group of women as a whole (Table 7.) However, this subset of women also face problems with keeping up with environmental regulations related to their activity all three years. No significant differences (at the  $p = 0.05$  level) were found in any of the responses in this subset. Nonowners face many of the same problems that Owners do, however a greater percentage of these women have challenges being respected in the industry, and while there is no significant difference across the three years, there was a large jump in percentage between 2005 and 2009 from 36.96 to 50 percent and this percentage hadn't changed by 2014 from its 2009 level.

#### *Decision Making Power*

Respondents were asked if they share business making power, have sole decision making power or have no power in decisions regarding their business/operations (Table 9). Overall, there has been a numerical increase (but no significant increase) in the percentage of women with no decision making power between 2005 to 2014. Table 9 shows that over time, a larger numerical percentage of Owners have gained sole power in decision making while the non-Owners have lost decision making power. However, there were no significant differences in the level of power across time for any of the three groups.

#### *Roles and Role Changes*

Respondents were asked who is involved in seven decision making areas (Tables 10-12). Table 10 shows the percentage distribution of decision making ranging from the woman (self), others, self and others, and not applicable. First, it can be noted that these types of activities were generally relevant to most women who completed the survey; that is with the exception of only

one activity in one of the years, roughly 12 percent or less of all women said that this activity was not relevant to their business and home roles at all. Second, when looking at the percentage of women who listed these roles belonged to self, there was a numerical increase in the percentage of women who were involved in decision making in these areas with the exception of for how household expenditures were made. Similarly, the percentage of women who listed these decisions were made by others only decreased over time. However, there is only one significant difference, and that is in purchasing equipment. Note that for a lot of areas the percentage of women with sole decision making power increased in 2009, but then came back down in 2014.

Similar results were found for Owners along, except for the decision of where to sell the product. The percentage of women who listed they alone made this decision decreased. However, there were no significant differences found for any activities over time. Interestingly over time it appears that Nonowners (Table 12) have more responsibility in many of the decision making areas. There was a significant increase in the percentage of Nonowners who participated in decisions related to whether to buy equipment ( $p = 0.0033$ ), where and when to sell products ( $p = 0.0260$ ). Nonowner respondents were asked if their role in decision making has become greater, less or remained the same over the last three years (Table 13). Table 13 shows the percentages of all respondents that had less, greater or no decision making changes over the last three years. When looking at all, generally roles were similar in 2005 and 2014. In 2009 values for Nonowners and Owners were numerically difference from their 2005 values. However, when examined across all three year together, there were no significant differences over time.

Respondents were asked who makes decisions or had an impact in eight areas (Tables 14-16). Table 14 shows the percentage of all respondents that have or have not experienced changes in those areas. When the percentage of “yes” responses are studied, three areas- impact on family



finances, quality of life for self and family, and relationships with other agriculture/agribusiness families were consistently in the top five areas impacted in all three years. In 2014, 100 percent of respondents improved relationships with other agriculture/agribusiness families in their new roles. However, no statistical differences were found across years, which shows that women are consistently impacting the industry each year. Tables 15 and 16 also show the same three areas (impacting family finances, quality of life for self and family, and relationships with other agriculture/agribusiness families) appeared in the top five each year. No significant differences ( $p = 0.05$ ) were found in any of the responses in this subset. Nonowners and Owners participation in decision making has led to changes in the same areas.

#### *Hypothesis Testing Results*

When examining the years 2005, 2009 and 2014 together, we fail to reject the hypotheses for significant differences except in the cases of:

- Job attributes
  - All women – meeting financial needs
  - Nonowners – providing jobs for the community
- Types of decisions
  - Nonowners – whether to buy major equipment; when/where to sell products

Numerically, numbers appeared very different in places between 2005 and 2009 as well as from 2009 to 2014. The years 2009 and 2010 presented challenges for farmers, and it is likely these challenges could explain at least the numerical differences in 2009 compared to 2005 and 2014. Perhaps the 2008 United States recession may have had an impact on responses in 2009. Further statistical testing, that compares 2005 and 2009, 2009 and 2014 as well as 2005 and 2014 for all women, for just Owners and just Nonowners is needed to examine further.

Differences (though not statistically tested) were found in the ranking of many of the important job attributes and challenges when looking at the total sample of women, only Owners, and only Nonowners. Because Owners and Nonowners have different levels of control within the company, there are differences in the challenges they face. Generally Owners are gaining more power within the company and are much more heavily involved in important business decisions; therefore, this leaves Nonowners with less opportunity for involvement. In addition, what is important to Nonowners will be very different from Owners because Nonowners reported the need to feel secure in their employment.

### **Conclusion**

In many parts of the U.S. the number of women in agriculture and the number of women principal operators is continuing to rise according to data published by the U.S. Census Bureau and United States Department of Agriculture. Many organizations have formed in part to better understanding of the expanding role of women in agriculture. The establishment of organizations such as Women in Agribusiness, American Agri-Women and Arkansas Women in Agriculture have strengthened the voice and influenced many women within the industry. This paper presents some of the findings of a decade long research study aimed at understanding the structure of women in agriculture in Arkansas, as well as the roles and challenges they face in their businesses and communities. The results presented here show that women continue to gain greater and greater roles in decision making (with over 40% of women citing their roles have increased in recent three year periods). These greater roles have led to changes in many areas, most prominently in the impact of family finances, quality of life and relationships with other agriculture/agribusiness families. Additional analysis of the data is needed to help highlight the differences between Owners and Nonowners (if any) across individual years to help better understand if the roles of these two groups of women are diverging or coming together.

It is hoped that the results here can be useful not only to researchers and educators interested in addressing needs of local women, but help to illustrate the continuing changes in women's roles and their needs and thus the need for extended research to address these needs.

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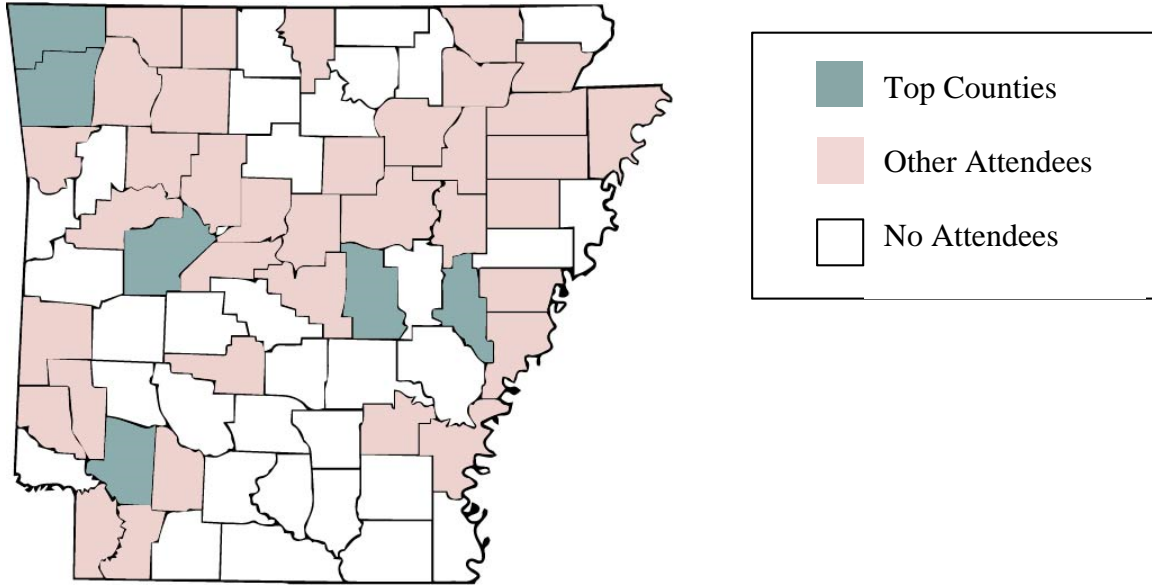
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**Figures**

Figure 1 2005, 2009 and 2014 Conference Attendees by County



**Tables**

Table 1 Total Number of Respondents

<b>Year</b>	<b>Owners</b>	<b>Nonowners Owners</b>	<b>Total Number of Respondents</b>
2005	70	72	142
2006	63	45	108
2007	47	45	92
2008	15	18	33
2009	27	24	51
2010	21	17	38
2011	21	15	36
2012	25	22	47
2014	20	21	41
<b>Total</b>	<b>309</b>	<b>279</b>	<b>588</b>

**Table 2. Summary Statistics for Women Respondents in 2005, 2009 and 2014**

<b>Variable</b>	<b>Definition</b>	<b>N</b>	<b>Mean</b>	<b>Standard Deviation</b>
<b>General</b>				
Acres Owned	Number of acres owned	145	457.88	640.12
Acres Rented	Number of acres rented	117	616.34	1093.44
Main Operator	Consider self as the or one of the main operators 0 = no, 1 = yes	150	0.63	0.48
Role in Operation	Principle Operator = 1, Full partner = 2, Business manager = 3, Helper = 4	229	3.42	1.68
Off-Farm Employment	Hold a second farm not related to farm/ranch/processing or agribus, 0 = no, 1 = yes	145	0.52	0.50
<b>Decision Making Areas</b>				
	<i>1 = You 2 = Others 3 = Both You and Others 4 = N/A to your situation</i>			
Property	Buy/sell/rent land or business property	142	2.67	0.68
Equipment	Buy major equipment	137	2.59	0.68
Practices	Types of farm/business practices	142	2.57	0.68
Selling	When/where to sell products	140	2.42	0.74
Hiring	Hiring workers	127	2.50	0.70
Financing	Whether to borrow money	143	2.60	0.72
Expenditures	how major household expenditures are made	145	2.28	0.94
<b>Role Change</b>	<i>Compared to three years ago, greater role today = 2, lesser role today = 1, no change = 0</i>	150	0.92	0.99
<b>Impact of Role Change</b>				
	<i>Role has led to changes in this area Yes = 1, no = 0</i>			
Investment	Change in capital investment in operation	69	0.59	0.49
Labor	Change in labor use in business	73	0.58	0.50
Plans	Expansion/contraction plans for business	67	0.54	0.50



<b>Variable</b>	<b>Definition</b>	<b>N</b>	<b>Mean</b>	<b>Standard Deviation</b>
Environment	Environmental concerns	68	0.51	0.50
Children	Role children play in the business	64	0.55	0.50
Finances	Impact on family finances	72	0.82	0.39
Quality	Impact on quality of life for self and family	70	0.86	0.35
Relationships	Relationships with other agriculture/agribusiness families	68	0.76	0.43
<b>Continuation</b>	If loss of domestic/business partner, would continue to run business 1 = definitely yes, 2 = probably yes, 3 = probably no, 4 = definitely no, 5 = have no partner in agricultural activity	153	2.08	1.11
<b>Marriage</b>	Marital Status, 0 = Never married 1 = Married or living w/ significant other 2 = Divorced/Separated 3 = Widow/Widower	229	1.02	0.57
<b>Education</b>	Highest level of education, 0 = Did not complete HS, 1 = HS degree, 2 = Some college, 3 = Two year college/tech. school degree, 4 = Four year college degree, 5 = Some post graduate work, 6 = Post graduate work	229	3.42	1.68
<b>Age</b>	0 = Under 25, 1 = 25-34, 2 = 35-44, 3 = 45-54, 4 = 55-64, 5 = 65-74, 6 = 75+	228	2.62	1.41
<b>Household Income</b>	Total household income for the previous year, 0 = Under \$20,000, 1 = \$20,001-\$49,999, 2 = \$50,000-\$99,999, 3 = \$100,000-\$149,000, 4 = \$150,000+	211	2.06	1.04

**Table 3. Significant differences in the percentage of all women who agree that these factors are important in their business**

Factor	2005					2009					2014					P-value
	SD	D	N	A	SA	SD	D	N	A	SA	SD	D	N	A	SA	
I can apply my talents and skills directly	3.03	0.76	5.30	36.36	54.55	0	2.44	4.88	48.78	43.90	0	0	12.50	45.00	42.50	0.3594
I feel secure about my employment future	3.15	6.30	15.75	42.52	32.28	2.50	2.50	20.00	42.50	32.50	0	2.50	12.50	62.50	22.50	0.6120
I make the key decisions about the business	1.56	11.72	32.03	36.72	17.97	5.00	15.00	32.50	25.00	22.50	5.13	5.13	28.21	41.03	20.51	0.6398
I don't have to make key decisions about the business	18.40	24.80	31.20	19.20	6.40	30.00	22.50	17.50	20.00	10.00	30.00	35.00	20.00	10.00	5.00	0.2864
I am able to meet current financial needs	0.77	5.38	16.15	41.54	36.15	4.88	9.76	21.95	39.02	24.39	0	7.50	5.00	70.00	17.50	0.0126**
I can try new ways of doing things	0	0.78	13.95	51.16	34.11	4.88	2.44	14.63	51.22	26.83	0	0	15.00	67.50	17.50	0.1181
I can participate in environmental conservation practices (ag or non ag)	0	2.36	20.47	48.82	28.35	0	0	20.51	46.15	33.33	2.50	0	15.00	65.00	17.50	0.3463
I am excited about my work	1.52	0.76	10.61	42.42	44.70	2.50	2.50	5.00	47.5	42.50	0	0	10.00	50.00	40.00	0.8373
I have flexible work hours	0.75	6.77	10.53	48.87	33.08	5.00	12.50	10.00	45.00	27.50	0	2.50	20.00	52.50	25.00	0.2745
I can balance my work and free time	2.29	9.92	17.56	41.22	29.01	5.00	7.50	7.50	62.50	17.50	0	7.50	15.00	62.50	15.00	0.1324
I can be involved in my community	0.75	0.75	10.53	56.39	31.58	2.50	0	10.00	65.00	22.50	0	2.56	10.26	61.54	25.64	0.7640
I improve my standard of living	0.78	3.10	13.18	51.16	31.78	2.50	5.00	7.50	67.50	17.50	0	5.00	17.50	62.50	15.00	0.1861
I can pass the business onto a family member	2.33	6.98	31.78	30.23	28.68	5.00	7.50	30.00	35.00	22.50	5.00	12.50	17.50	40.00	25.00	0.6630
I provide jobs for my community	2.36	13.39	36.22	31.50	16.54	10.00	12.50	42.50	27.50	7.50	2.50	10.00	30.00	42.50	15.00	0.3219

Note. SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree. \*p < 0.10. \*\*p < 0.05. \*\*\*p < 0.01.

**Table 4. Significant differences in the percentage of women Owners who agree that these factors are important in their business**

Factor	2005					2009					2014					P-value
	SD	D	N	A	SA	SD	D	N	A	SA	SD	D	N	A	SA	
I can apply my talents and skills directly	4.29	1.43	7.14	38.57	48.57	0	0	0	47.62	52.38	0	0	19.05	42.86	38.10	0.5197
I feel secure about my employment future	4.41	8.82	20.59	33.82	32.35	4.76	4.76	23.81	23.81	42.86	0	4.76	14.29	57.14	23.81	0.6317
I make the key decisions about the business	1.45	8.37	27.54	39.13	23.19	0	9.52	28.57	33.33	28.57	0	0	25.00	40.00	35.00	0.9098
I don't have to make key decisions about the business	27.69	26.15	27.69	16.92	1.54	35.00	25.00	20.00	15.00	5.00	33.33	38.10	14.29	9.52	4.76	0.7758
I am able to meet current financial needs	1.43	8.57	15.71	38.57	35.71	4.76	0	14.29	42.86	38.10	0	9.52	4.76	76.19	9.52	0.0549
I can try new ways of doing things	0	1.45	11.59	52.17	34.78	4.76	0	4.76	61.90	28.57	0	0	14.29	66.67	19.05	0.5132
I can participate in environmental conservation practices (ag or non ag)	0	1.47	11.76	54.41	32.35	0	0	14.29	52.38	33.33	0	0	14.29	61.90	23.81	0.9643
I am excited about my work	1.43	0	12.86	42.86	42.86	0	0	4.76	38.10	57.14	0	0	14.29	38.10	47.62	0.8634
I have flexible work hours	0	5.71	11.43	47.14	35.71	4.76	14.29	4.76	42.86	33.33	0	0	28.57	47.62	23.81	0.1363
I can balance my work and free time	4.35	11.59	24.64	36.23	23.19	4.76	4.76	9.52	61.90	19.05	0	14.29	23.81	47.62	14.29	0.5741
I can be involved in my community	1.41	0	15.49	54.93	28.17	4.76	0	0	71.43	23.81	0	5.00	15.00	55.00	25.00	0.2342
I improve my standard of living	1.45	4.35	15.94	52.17	26.09	4.76	9.52	0	66.67	19.05	0	4.76	23.81	61.90	9.52	0.1684
I can pass the business onto a family member	0	4.29	21.43	38.57	35.71	0	4.76	23.81	33.33	38.10	0	4.76	4.76	47.62	42.86	0.6309
I provide jobs for my community	1.47	16.18	26.47	41.18	14.71	4.76	19.05	38.10	23.81	14.29	0	0	38.10	38.10	23.81	0.2771

Note. SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree. \*p < 0.10. \*\*p < 0.05. \*\*\*p < 0.01.

**Table 5. Significant differences in the percentage of women Nonowners who agree that these factors are important in their business**

Factor	2005					2009					2014					P-value
	SD	D	N	A	SA	SD	D	N	A	SA	SD	D	N	A	SA	
I can apply my talents and skills directly	1.61	0	3.23	33.87	61.29	0	5.00	10.00	50.00	35.00	0	0	5.26	47.37	47.37	0.2110
I feel secure about my employment future	1.69	3.39	10.17	52.54	32.20	0	0	15.79	63.16	21.05	0	0	10.53	68.42	21.05	0.9025
I make the key decisions about the business	1.69	15.25	37.29	33.9	11.86	10.53	21.05	36.84	15.79	15.79	10.53	10.53	31.58	42.11	5.26	0.3925
I don't have to make key decisions about the business	8.33	23.33	35.00	21.67	11.67	25.00	20.00	15.00	25.00	15.00	26.32	31.58	26.32	10.53	5.26	0.2819
I am able to meet current financial needs	0	1.67	16.67	45.00	36.67	5.00	20.00	30.00	35.00	10.00	0	5.26	5.26	63.16	26.32	0.0061***
I can try new ways of doing things	0	0	16.67	50.00	33.33	5.00	5.00	25.00	40.00	25.00	0	0	15.79	68.42	15.79	0.1992
I can participate in environmental conservation practices (ag or non ag)	0	3.39	30.51	42.37	23.73	0	0	27.78	38.89	33.33	5.26	0	15.79	68.42	10.53	0.2595
I am excited about my work	1.61	1.61	8.06	41.94	46.77	5.26	5.26	5.26	57.89	26.32	0	0	5.26	63.16	31.58	0.4670
I have flexible work hours	1.59	7.94	9.52	50.79	30.16	5.26	10.53	15.79	47.37	21.05	0	5.26	10.53	57.89	26.32	0.9245
I can balance my work and free time	0	8.06	9.68	46.77	35.48	5.26	10.53	5.26	63.16	15.79	0	0	5.26	78.95	15.79	0.1337
I can be involved in my community	0	1.61	4.84	58.06	35.48	0	0	21.05	57.89	21.05	0	0	5.26	68.42	26.32	0.3573
I improve my standard of living	0	1.67	10.00	50.00	38.33	0	0	15.79	68.42	15.79	0	5.26	10.53	63.16	21.05	0.3585
I can pass the business onto a family member	5.08	10.17	44.07	20.34	20.34	10.53	10.53	36.84	36.84	5.23	10.53	21.05	31.58	31.58	5.26	0.3579
I provide jobs for my community	3.39	10.17	47.46	20.34	18.64	15.79	5.26	47.37	31.58	0	5.26	21.05	21.05	47.37	5.26	0.0210**

Note. SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree. \*p < 0.10. \*\*p < 0.05. \*\*\*p < 0.01.

**Table 6. Percentage of all women responses to problems in business activity**

Factor	2005					2009					2014					P-value
	SD	D	N	A	SA	SD	D	N	A	SA	SD	D	N	A	SA	
Networking with others in similar activities	13.27	38.05	28.32	18.58	1.77	12.82	33.33	20.51	25.64	7.69	16.67	36.67	20.00	20.00	6.67	0.6921
Finding good information about production/agribusiness best management practices	11.71	35.14	27.93	20.72	4.50	17.95	30.77	25.64	15.38	10.26	9.38	37.5	34.38	12.50	6.25	0.7898
Finding information about government programs related to my type of business	7.14	35.71	25.00	23.21	8.93	10.26	33.33	25.64	17.95	12.82	6.45	38.71	22.58	25.81	6.45	0.9813
Qualifying for government programs related to my type of business	2.70	30.63	36.94	24.32	5.41	5.13	23.08	33.33	23.08	15.38	3.23	35.48	35.48	16.13	9.68	0.6641
Knowing where/how to market my products	9.73	31.86	31.86	21.24	5.31	10.26	23.08	28.21	23.08	15.38	9.68	51.61	19.35	16.13	3.23	0.1955
Keeping up with environmental regulations related to my activity	7.08	26.55	30.09	30.09	6.19	12.82	23.08	33.33	17.95	12.82	6.45	29.03	38.71	19.35	6.45	0.6351
Keeping financial records	13.16	27.19	24.56	25.44	9.65	7.69	28.21	28.21	20.51	15.38	12.90	38.71	22.58	19.35	6.45	0.8438
Finding/affording a good lawyer	4.46	16.96	39.29	25.89	13.39	2.56	7.69	43.59	30.77	15.38	3.23	19.35	38.71	25.81	12.9	0.9443
Keeping good employees	5.36	16.07	35.71	29.46	13.39	8.33	13.89	41.67	19.44	16.67	9.68	12.9	35.48	32.26	9.68	0.9227
Handling my cash flow	8.18	34.55	30.00	23.64	3.64	2.7	24.32	35.14	21.62	16.22	6.67	43.33	23.33	16.67	10.0	0.2232
Gaining access to credit	15.18	41.96	25.00	13.39	4.46	5.26	39.47	36.84	10.53	7.89	20.00	33.33	26.67	13.33	6.67	0.6762
Completing loan forms and other important paperwork	11.61	38.39	26.79	17.86	5.36	10.53	36.84	28.95	13.16	10.53	10.00	40.00	30.00	13.33	6.67	0.9833
Being respected in my industry as a female business person	7.02	28.07	24.56	24.56	15.79	13.16	28.95	23.68	23.68	10.53	6.90	41.38	20.69	27.59	3.45	0.6510

*Note.* SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree. \*p < 0.10. \*\*p < 0.05. \*\*\*p < 0.01.

**Table 7. Percentage of all owner responses to problems in business activity**

Factor	2009					2009					2014					P-value
	SD	D	N	A	SA	SD	D	N	A	SA	SD	D	N	A	SA	
Networking with others in similar activities	13.43	32.84	29.85	22.39	1.49	13.64	36.36	18.18	27.27	4.55	21.05	31.58	21.07	21.05	5.26	0.8700
Finding good information about production/agribusiness best management practices	8.96	37.31	2.09	28.36	4.48	18.18	40.91	13.64	18.18	9.09	10.00	20.00	45.00	20.00	5.00	0.2975
Finding information about government programs related to my type of business	7.35	35.29	14.71	29.41	13.24	9.09	40.91	13.64	22.73	13.64	5.00	35.00	25.00	30.00	5.00	0.9587
Qualifying for government programs related to my type of business	1.49	32.84	25.37	32.84	7.46	4.55	27.27	22.73	31.82	13.64	5.00	35.00	25.00	20.00	15.00	0.8080
Knowing where/how to market my products	10.14	30.43	30.43	20.29	8.70	9.09	27.27	22.73	22.73	18.18	10.00	45.00	20.00	20.00	5.00	0.8709
Keeping up with environmental regulations related to my activity	0	1.47	11.76	54.41	32.35	0	0	14.29	52.38	33.33	0	0	14.29	61.90	23.81	0.9643
Keeping financial records	10.00	28.57	21.43	27.14	12.86	4.55	27.27	18.18	27.27	22.73	15.00	40.00	15.00	25.00	5.00	0.8220
Finding/affording a good lawyer	2.94	20.59	29.41	30.88	16.18	4.55	9.09	36.36	31.82	18.18	5.00	20.00	30.00	30.00	15.00	0.9730
Keeping good employees	3.03	19.7	28.79	30.3	18.18	9.52	14.29	33.33	23.81	19.05	5.00	20.00	20.00	40.00	15.00	0.8947
Handling my cash flow	2.99	34.33	32.84	25.37	4.48	4.55	27.27	18.18	27.27	22.73	5.26	47.37	15.79	21.05	10.53	0.2645
Gaining access to credit	13.24	45.59	22.06	13.24	5.88	9.09	50.00	27.27	9.09	4.55	21.05	42.11	10.53	15.79	10.53	0.8832
Completing loan forms and other important paperwork	10.45	44.78	22.39	14.93	7.46	13.64	40.91	18.18	13.64	13.64	10.53	47.37	21.05	15.79	5.26	0.9935
Being respected in my industry as a female business person	5.88	32.35	19.12	22.06	20.59	13.64	40.91	22.73	13.64	9.09	10.53	52.63	15.79	15.79	5.26	0.5308

*Note.* SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree. \*p < 0.10. \*\*p < 0.05. \*\*\*p < 0.01.

**Table 8. Percentage of all Nonowners responses to problems in business activity**

Factor	2005					2009					2014					P-value
	SD	D	N	A	SA	SD	D	N	A	SA	SD	D	N	A	SA	
Networking with others in similar activities	13.04	45.65	26.09	13.04	2.17	11.76	29.41	23.53	23.53	11.76	9.09	45.45	18.18	18.18	9.09	0.7367
Finding good information about production/agribusiness best management practices	15.91	31.82	38.64	9.09	4.55	17.65	17.65	41.18	11.76	11.76	8.33	66.67	16.67	0	8.33	0.2992
Finding information about government programs related to my type of business	6.82	36.36	40.91	13.64	2.27	11.76	23.53	41.18	11.76	11.76	9.09	45.45	18.18	18.18	9.09	0.5880
Qualifying for government programs related to my type of business	4.55	27.27	54.55	11.36	2.27	5.88	17.65	47.06	11.76	17.65	0	36.36	54.55	9.09	0	0.5942
Knowing where/how to market my products	9.09	34.09	34.09	22.73	0	11.76	17.65	35.29	23.53	11.76	9.09	63.64	18.18	9.09	0	0.2039
Keeping up with environmental regulations related to my activity	6.67	24.44	37.78	31.11	0	17.65	17.65	52.94	5.88	5.88	0	45.45	36.36	18.18	0	0.1284
Keeping financial records	18.18	25.00	29.55	22.73	4.55	11.76	29.41	41.18	11.76	5.88	9.09	36.36	36.36	9.09	9.09	0.9170
Finding/affording a good lawyer	6.82	11.36	54.55	18.18	9.09	0	5.88	52.94	29.41	11.76	0	18.18	54.55	18.18	9.09	0.9555
Keeping good employees	8.70	10.87	45.65	28.26	6.52	6.67	13.33	53.33	13.33	13.33	18.18	0	63.64	18.18	0	0.7362
Handling my cash flow	16.28	34.88	25.58	20.93	2.33	0	20	60	13.33	6.67	9.09	36.36	36.36	9.09	9.09	0.2645
Gaining access to credit	18.18	36.36	29.55	13.64	2.27	0	25	50	12.50	12.50	18.18	18.18	54.55	9.09	0	0.2602
Completing loan forms and other important paperwork	13.33	28.89	33.33	22.22	2.22	6.25	31.25	43.75	12.50	6.25	9.09	27.27	45.45	9.09	9.09	0.8718
Being respected in my industry as a female business person	8.70	21.74	32.61	28.26	8.70	12.50	12.50	25.00	37.50	12.50	0	20.00	30.00	50.00	0	0.9012

Note. SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree. \*p < 0.10. \*\*p < 0.05. \*\*\*p < 0.01.

**Table 9. Decision making power in women's businesses**

	<b>2005</b>	<b>2009</b>	<b>2014</b>	<b>P-value</b>
<b>All Owners &amp; Nonowners Owners</b>				
No decision making power	15.15	14.63	17.50	
I share decision making power	80.30	73.17	72.50	0.3884
I have sole power	4.55	12.20	10.00	
<b>Nonowners</b>				
No decision making power	4.17	0	0	
I share decision making power	91.67	90.00	85.71	0.3599
I have sole power	4.17	10.00	14.29	
<b>Owners</b>				
No decision making power	28.33	28.57	36.84	
I share decision making power	66.67	57.14	57.89	0.6321
I have sole power	5.00	14.29	5.26	

Note. \*p < 0.10. \*\*p < 0.05. \*\*\*p < 0.01.



**Table 10. Percentages of all respondents who are involved in decisions**

	2005				2009				2014				P-value
	Self	Others	Self & Others	None	Self	Others	Self & Others	None	Self	Others	Self & Others	None	
Whether to buy/sell/rent land or business property	7.61	9.78	78.26	4.35	18.75	9.38	71.88	0	16.00	4.00	68.00	12.00	0.1950
Whether to buy major equipment	5.49	20.88	68.13	5.49	18.18	15.15	60.61	6.06	16.00	8.00	56.00	20.00	0.0486
Types of farm/business practices used	7.78	24.44	65.56	2.22	14.71	20.59	58.82	5.88	12.00	8.00	68.00	12.00	0.1753
When/where to sell products	11.24	29.21	53.93	5.62	20.59	24.67	47.06	5.88	16.00	12.00	68.00	4.00	0.4799
Hiring workers	6.59	24.18	57.14	12.09	18.18	18.18	39.39	24.24	12.00	20.00	56.00	12.00	0.2464
Whether to borrow money	9.89	12.09	75.82	2.20	17.65	11.76	64.71	5.88	20.83	8.33	62.50	8.33	0.3740
How major household expenditures are made	34.78	2.90	59.42	2.90	26.09	0	73.91	0	33.33	0	66.67	0	0.9381

Note. N/A = not applicable. \*p < 0.10. \*\*p < 0.05. \*\*\*p < 0.01.

**Table 11. Percentages of Owners who are involved in decisions**

	2005				2009				2014				P-value
	You	Others	Self & Others	None	You	Others	Self & Others	None	You	Others	Self & Others	None	
Whether to buy/sell/rent land or business property	8.70	5.80	81.16	4.35	17.39	8.70	73.90	0	16.67	0	77.78	5.56	0.6214
Whether to buy major equipment	5.88	10.29	80.88	2.94	17.39	21.74	56.52	4.35	16.67	11.11	61.11	11.11	0.1009
Types of farm/business practices used	10.45	17.91	71.64	0	12.50	12.50	70.83	4.17	11.11	5.56	77.78	5.56	0.4363
When/where to sell products	14.93	22.39	58.21	4.48	20.83	20.83	58.33	0	11.11	16.67	72.22	0	0.9271
Hiring workers	8.70	20.29	60.87	10.14	21.74	21.74	47.83	8.70	11.11	16.67	61.11	11.11	0.7779
Whether to borrow money	10.29	7.35	80.88	1.47	16.67	12.50	70.83	0	17.65	5.88	70.59	5.88	0.5913
How major household expenditures are made	34.78	2.90	59.42	2.90	26.09	0	73.91	0	33.33	0	66.67	0	0.9381

Note. N/A = not applicable. \*p < 0.10. \*\*p < 0.05. \*\*\*p < 0.01.

**Table 12. Percentages of Nonowners who are involved in decisions**

	2009				2009				2014				P-value
	You	Others	Self & Others	None	You	Others	Self & Others	None	You	Others	Self & Others	None	
Whether to buy/sell/rent land or business property	4.35	21.74	69.57	4.35	22.22	11.11	66.67	0	14.29	14.29	42.86	28.57	0.2251
Whether to buy major equipment	4.35	52.17	30.43	13.04	20.00	0	70.00	10.00	14.29	0	42.86	42.86	0.0033***
Types of farm/business practices used	0	43.48	47.83	8.70	20.00	40.00	30.00	10.00	14.29	14.29	42.86	28.57	0.1774
When/where to sell products	0	50.00	40.91	9.09	20.00	40.00	20.00	20.00	28.57	0	57.14	14.29	0.0260**
Hiring workers	0	36.36	45.45	18.18	10.00	10.00	20.00	60.00	14.29	28.57	42.86	14.29	0.0812*
Whether to borrow money	8.70	26.09	60.87	4.35	20.00	10.00	50.00	20.00	28.57	14.29	42.86	14.29	0.4642
How major household expenditures are made	34.78	8.70	52.17	4.35	40.00	0	50.00	10.00	14.29	28.57	42.86	14.29	0.4887

Note. N/A = not applicable. \*p < 0.10. \*\*p < 0.05. \*\*\*p < 0.01.

**Table 13. Percentage of women whose roles in decision making changed over the last three years**

	2005			2009			2014			P-value
	None	Less	Greater	None	Less	Greater	None	Less	Greater	
All Owners & Nonowners	52.75	3.30	43.96	54.55	0	45.45	50.00	3.85	46.15	0.9281
Owners	53.73	4.48	41.79	45.83	0	54.17	50.00	5.56	44.44	0.7666
Nonowners	50.00	0	50.00	77.78	0	22.22	50.00	0	50.00	0.3841

Note. None = no change, Less = less role today, Greater = greater role today. \*p < 0.10. \*\*p < 0.05. \*\*\*p < 0.01.

**Table 14. Percentages of all women whose participation in decision making has led to changes or had an impact**

	2005		2009		2014		P-value
	No	Yes	No	Yes	No	Yes	
Change in capital investment in operation	39.13	60.87	50.00	50.00	33.33	66.67	0.7553
Change in labor use in business	47.92	52.08	33.33	66.67	30.00	70.00	0.4670
Expansion/contraction plans for business	50.00	50.00	46.15	53.85	25.00	75.00	0.4555
Environmental concerns	56.52	43.48	28.57	71.43	37.50	62.50	0.1648
Role children play in the business	44.19	55.81	53.85	46.15	37.50	62.50	0.8020
Impact on family finances	22.92	77.08	0	100.00	22.22	77.78	0.0950*
Impact on quality of life for self and family	17.02	82.98	7.14	92.86	11.11	88.89	0.8702
Relationships with other agriculture/agribusiness families	28.26	71.74	21.43	78.57	0	100.00	0.2771

Note. \*p < 0.10. \*\*p < 0.05. \*\*\*p < 0.01.

**Table 15. Percentages of Owners whose participation in decision making has led to changes or had an impact**

	2005		2009		2014		P-value
	No	Yes	No	Yes	No	Yes	
Change in capital investment in operation	39.39	60.61	45.45	54.55	16.67	86.33	0.5078
Change in labor use in business	45.71	54.29	25.00	75.00	14.29	85.71	0.2363
Expansion/contraction plans for business	48.48	51.52	40.00	60.00	0	100.00	0.1458
Environmental concerns	54.55	45.45	36.36	63.64	40.00	60.00	0.6074
Role children play in the business	35.48	64.52	60.00	40.00	20.00	80.00	0.2639
Impact on family finances	22.86	77.14	0	100.00	0	100.00	0.1260
Impact on quality of life for self and family	17.14	82.86	0	100.00	0	100.00	0.3116
Relationships with other agriculture/agribusiness families	26.47	73.53	27.27	72.73	0	100.00	0.5293

Note. \*p < 0.10. \*\*p < 0.05. \*\*\*p < 0.01.

**Table 16. Percentages of Nonowners whose participation in decision making has led to changes or had an impact**

	2005		2009		2014		P-value
	No	Yes	No	Yes	No	Yes	
Change in capital investment in operation	38.46	61.54	66.67	33.33	66.67	33.33	0.4985
Change in labor use in business	53.85	46.15	66.67	33.33	66.67	33.33	1.0000
Expansion/contraction plans for business	53.85	46.15	66.67	33.33	66.67	33.33	1.0000
Environmental concerns	61.54	38.46	0	100.00	33.33	66.67	0.2616
Role children play in the business	66.67	33.33	33.33	66.67	66.67	33.33	0.7760
Impact on family finances	23.08	76.92	0	100.00	66.67	33.33	0.2990
Impact on quality of life for self and family	16.67	83.33	33.33	66.67	33.33	66.67	0.5686
Relationships with other agriculture/agribusiness families	33.33	66.67	0	100	0	100.00	0.3745

Note. \*p < 0.10. \*\*p < 0.05. \*\*\*p < 0.01.

# 2009 Survey of Arkansas Women in Agriculture

**Calling ALL conference participants! Please complete this important survey!**

The objectives of this survey are:

- 1) to gather information regarding the roles women hold in agriculture and the challenges they face in these roles and
- 2) to learn if these roles and challenges differ greatly from their male counterparts.

*Completion of this survey is voluntary and your individual answers are strictly confidential.* However, by completing this survey, you will be providing important and new information that will be used to help identify the need for continued programs - like a women in agriculture conference - for Arkansas's women in agriculture.

	Please indicate whether or not you have <b>ever</b>	Yes	No
a	Owned an agricultural production (row crop, livestock, aquaculture, fruits and vegetables, horticultural, etc) operation	___ <sub>1</sub> Yes	___ <sub>0</sub> No
b	Managed an agricultural production operation	___ <sub>1</sub> Yes	___ <sub>0</sub> No
c	Owned an agricultural processing business	___ <sub>1</sub> Yes	___ <sub>0</sub> No
d	Managed an agricultural processing business	___ <sub>1</sub> Yes	___ <sub>0</sub> No
e	Owned an agribusiness (any business that directly supports agricultural production or processing)	___ <sub>1</sub> Yes	___ <sub>0</sub> No
f	Managed an agribusiness	___ <sub>1</sub> Yes	___ <sub>0</sub> No

2. Which of the following describes your **current** position? **Please choose all that apply?**

- |  |   |
|--|---|
| ___ <sub>1</sub> Farm/ranch/processing owner/operator                        | ___ <sub>2</sub> Agribusiness owner                                 |
| ___ <sub>3</sub> Agribusiness employee                                       | ___ <sub>4</sub> Lending institution owner/employee                 |
| ___ <sub>5</sub> General or commodity farm organizations (e.g., Farm Bureau) | ___ <sub>6</sub> Other non ag position, specify _____               |
| ___ <sub>7</sub> Retired from agriculture/agribusiness industry              | ___ <sub>8</sub> Retired from other industry                        |
| ___ <sub>9</sub> Student   | ___ <sub>10</sub> Never worked outside the home or on a family farm |

3. Of those positions chosen in question 2, which one would you describe as your **primary** position? Please fill in the blank. \_\_\_\_\_

4. How long have you been in this primary position? \_\_\_\_\_ Years

**If you answered (1) or (2) to question # 2 above, please continue with part A below.**

**If you answered (3) through (10) to question # 2 above, please continue with section B on page 5.**



## Part A. FOR AGRICULTURAL BUSINESS ACTIVITY OWNER/OPERATORS

From this point on, all agricultural production, processing and other agricultural businesses will simply be referred to as "business activities"

1. In what county is your business activity located? \_\_\_\_\_ County
  
2. What was the nature of your business activity in 2008? Please rank (with 1 being the most important) each of your activities. For example if your business consisted primarily of goat production but you raised vegetables for your local farmers market as well, you would place a "1" next to Livestock Production and a "2" next to Fruit/vegetable.  
\_\_\_\_<sub>1</sub> Fruit/vegetable production      \_\_\_\_<sub>2</sub> Row Crop Production      \_\_\_\_<sub>3</sub> Livestock production  
\_\_\_\_<sub>4</sub> Forestry production      \_\_\_\_<sub>5</sub> Aquaculture production      \_\_\_\_<sub>6</sub> Agricultural processor  
\_\_\_\_<sub>7</sub> Agricultural marketing      \_\_\_\_<sub>8</sub> Agriculture input supplier (feed, fertilizer, machinery, etc)  
\_\_\_\_<sub>9</sub> Other Agricultural business activity (please specify) \_\_\_\_\_
  
3. How many acres did you own in 2008? \_\_\_\_\_ (Acres)
4. How many acres did you rent in 2008? \_\_\_\_\_ (Acres)
  
5. Do you consider yourself to be the main operator or one of the main operators for your business activity? An "operator" is considered to be a person who makes day-to-day decisions about running the business activity.  
\_\_\_\_<sub>0</sub> No      \_\_\_\_<sub>1</sub> Yes
  
6. For the year 2008, how would you describe yourself as a farm/ranch/processor/agribusiness person?  
\_\_\_\_<sub>1</sub> Principal operator: *(has sole or primary responsibility for all aspects of the agricultural activities.)*  
\_\_\_\_<sub>2</sub> Full agricultural partner: *(shares equal work or decision making with her spouse or others.)*  
\_\_\_\_<sub>3</sub> Business manager: *(main responsibilities are bookkeeping, information gathering, and financial decision making, but another is the primary operator.)*  
\_\_\_\_<sub>4</sub> Agricultural helper: *(participates by helping in busy times, waiting on customers, runs errands, etc.)*
  
7. What is the ownership structure of your business activity?  
\_\_\_\_<sub>1</sub> Sole/family proprietorship      \_\_\_\_<sub>2</sub> Legal partnership      \_\_\_\_<sub>3</sub> Family held corporation  
\_\_\_\_<sub>4</sub> Non-family corporation      \_\_\_\_<sub>5</sub> Cooperative      \_\_\_\_<sub>6</sub> Don't know  
\_\_\_\_<sub>7</sub> Other (please specify \_\_\_\_\_)
  
8. Do you hold a second (not related to your farm/ranch/processing or agribusiness) job? \_\_\_\_<sub>0</sub>No      \_\_\_\_<sub>1</sub> Yes
  - a. If yes, which of the following reasons best describe why? Check all that apply.  
\_\_\_\_<sub>1</sub> Need money for household expenses      \_\_\_\_<sub>2</sub> Need money for business expenses  
\_\_\_\_<sub>3</sub> Need benefits (insurance, retirement, etc)      \_\_\_\_<sub>4</sub> Want to develop more skills  
\_\_\_\_<sub>5</sub> Want to get away from the other business activity
  - b. Did the skills you acquired in your farm/ranch/processing/agribusiness job enhance your abilities in your off farm job? \_\_\_\_<sub>0</sub>No      \_\_\_\_<sub>1</sub>Yes

9. Does your domestic partner hold a second (not related to the farm/ranch or agribusiness) job?  
 \_\_\_\_\_<sub>0</sub>No      \_\_\_\_\_<sub>1</sub>Yes      \_\_\_\_\_<sub>2</sub> Do not have a domestic partner

If yes, which of the following reasons best describe why ? Check all that apply.

- \_\_\_\_\_<sub>1</sub> Need money for household expenses      \_\_\_\_\_<sub>2</sub> Need money for business expenses  
 \_\_\_\_\_<sub>3</sub> Need benefits (insurance, retirement, etc)      \_\_\_\_\_<sub>4</sub> Want to develop more skills  
 \_\_\_\_\_<sub>5</sub> Want to get away from other business

## DECISION-MAKING

10. As of 2008, who participates in the decision making for your business activity? Check all that apply.

- \_\_\_\_\_<sub>1</sub> You      \_\_\_\_\_<sub>2</sub> Spouse/domestic partner      \_\_\_\_\_<sub>3</sub> Business partner  
 \_\_\_\_\_<sub>4</sub> Family (yours)      \_\_\_\_\_<sub>5</sub> Family (in-laws)      \_\_\_\_\_<sub>6</sub> Hired manager  
 \_\_\_\_\_<sub>7</sub> Consultant      \_\_\_\_\_<sub>8</sub> Other (please specify \_\_\_\_\_)

11. As of 2008, who is involved in the following types of decisions?

Who usually makes the final decision about:	You	Others	Both You and Others	Not Applicable to your situation
whether to buy/sell/rent land or business property?	_____ <sub>1</sub> Y	_____ <sub>2</sub> O	_____ <sub>3</sub> B	_____ <sub>4</sub> N/A
whether to buy major equipment?	_____ <sub>1</sub> Y	_____ <sub>2</sub> O	_____ <sub>3</sub> B	_____ <sub>4</sub> N/A
types of farm/business practices used?	_____ <sub>1</sub> Y	_____ <sub>2</sub> O	_____ <sub>3</sub> B	_____ <sub>4</sub> N/A
when/where to sell products?	_____ <sub>1</sub> Y	_____ <sub>2</sub> O	_____ <sub>3</sub> B	_____ <sub>4</sub> N/A
hiring workers?	_____ <sub>1</sub> Y	_____ <sub>2</sub> O	_____ <sub>3</sub> B	_____ <sub>4</sub> N/A
whether to borrow money?	_____ <sub>1</sub> Y	_____ <sub>2</sub> O	_____ <sub>3</sub> B	_____ <sub>4</sub> N/A
how major household expenditures are made?	_____ <sub>1</sub> Y	_____ <sub>2</sub> O	_____ <sub>3</sub> B	_____ <sub>4</sub> N/A

12. Which of the following sources of information do you use to gather important information that can assist you in your business activity?

Source of Information	Never	Sometimes	Often	Always
County extension agent	_____ <sub>0</sub> N	_____ <sub>1</sub> S	_____ <sub>2</sub> O	_____ <sub>3</sub> A
University extension specialist	_____ <sub>0</sub> N	_____ <sub>1</sub> S	_____ <sub>2</sub> O	_____ <sub>3</sub> A
Extension publications (newsletters, fact sheets)	_____ <sub>0</sub> N	_____ <sub>1</sub> S	_____ <sub>2</sub> O	_____ <sub>3</sub> A
Commercial consultant	_____ <sub>0</sub> N	_____ <sub>1</sub> S	_____ <sub>2</sub> O	_____ <sub>3</sub> A
General/commodity farm organizations (e.g., Farm Bureau)	_____ <sub>0</sub> N	_____ <sub>1</sub> S	_____ <sub>2</sub> O	_____ <sub>3</sub> A
Magazines	_____ <sub>0</sub> N	_____ <sub>1</sub> S	_____ <sub>2</sub> O	_____ <sub>3</sub> A
Others working in same agricultural activity	_____ <sub>0</sub> N	_____ <sub>1</sub> S	_____ <sub>2</sub> O	_____ <sub>3</sub> A
Other _____	_____ <sub>0</sub> N	_____ <sub>1</sub> S	_____ <sub>2</sub> O	_____ <sub>3</sub> A
I can't find the information I need	_____ <sub>0</sub> N	_____ <sub>1</sub> S	_____ <sub>2</sub> O	_____ <sub>3</sub> A

13. How has your role in the decision making changed over the last 3 years (from 2006 through 2008)?  
 \_\_\_<sub>2</sub> Greater role today    \_\_\_<sub>1</sub> Less role today    \_\_\_<sub>0</sub> No change (If no change, skip to question # 15)

14. If your role has changed, please indicate whether your participation in decision making has led to changes (had an impact) in these areas.

Area	Role Change Has Led to Changes in this area	
	No	Yes
Change in capital investment in operation	___ <sub>0</sub> No	___ <sub>1</sub> Y
Change in labor use in business	___ <sub>0</sub> No	___ <sub>1</sub> Y
Expansion/contraction plans for business	___ <sub>0</sub> No	___ <sub>1</sub> Y
Environmental concerns	___ <sub>0</sub> No	___ <sub>1</sub> Y
Role children play in the business	___ <sub>0</sub> No	___ <sub>1</sub> Y
Impact on family finances	___ <sub>0</sub> No	___ <sub>1</sub> Y
Impact on quality of life for self and family	___ <sub>0</sub> No	___ <sub>1</sub> Y
Relationships with other agriculture/agribusiness families	___ <sub>0</sub> No	___ <sub>1</sub> Y

15. If something should happen to your domestic/business partner, would you continue to run the business activity on your own?

- \_\_\_<sub>1</sub> Definitely Yes
- \_\_\_<sub>2</sub> Probably Yes
- \_\_\_<sub>3</sub> Probably No
- \_\_\_<sub>4</sub> Definitely No
- \_\_\_<sub>5</sub> Have no partner in my agricultural activity

## Part B. FOR ALL PARTICIPANTS

We would like all participants to answer this section. If you are a farm/ranch owner or operator, or an agribusiness owner, please answer this section with regard to that business. All others, please provide your opinions.

1. Each statement starts with the phrase “In my business it is important to me that... .” Please indicate if you Strongly Disagree (SD), Disagree (D), are Neutral (N), Agree (A) or Strongly Agree (A) with the following statements by putting an X next to the corresponding letters. **In addition, if you are currently employed**, also indicate if you are satisfied with how well you are doing in the area.

In my business it is important to me that...	How strongly do you agree with this statement?					If you are employed, indicate if you are satisfied with how well you are doing in this area.	
	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA	___ <sub>1</sub> Yes	___ <sub>0</sub> No
I can apply my talents and skills directly	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA	___ <sub>1</sub> Yes	___ <sub>0</sub> No
I feel secure about my employment future	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA	___ <sub>1</sub> Yes	___ <sub>0</sub> No
I make the key decisions about the business	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA	___ <sub>1</sub> Yes	___ <sub>0</sub> No
I don't have to make key decisions about the business	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA	___ <sub>1</sub> Yes	___ <sub>0</sub> No
I am able to meet current financial needs	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA	___ <sub>1</sub> Yes	___ <sub>0</sub> No
I can try new ways of doing things	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA	___ <sub>1</sub> Yes	___ <sub>0</sub> No
I can participate in environmental conservation practices (agricultural or non agricultural)	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA	___ <sub>1</sub> Yes	___ <sub>0</sub> No
I am excited about my work	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA	___ <sub>1</sub> Yes	___ <sub>0</sub> No
I have flexible work hours	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA	___ <sub>1</sub> Yes	___ <sub>0</sub> No
I can balance my work and free time	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA	___ <sub>1</sub> Yes	___ <sub>0</sub> No
I can be involved in my community	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA	___ <sub>1</sub> Yes	___ <sub>0</sub> No
I improve my standard of living	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA	___ <sub>1</sub> Yes	___ <sub>0</sub> No
I can pass the business onto a family member	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA	___ <sub>1</sub> Yes	___ <sub>0</sub> No
I provide jobs for my community	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA	___ <sub>1</sub> Yes	___ <sub>0</sub> No

2. Do you have decision making power in your own business, agricultural related or otherwise?

\_\_\_<sub>2</sub> I have sole decision making power (continue with question 3)

\_\_\_<sub>1</sub> I share decision making power (continue with question 3)

\_\_\_<sub>0</sub> I have no decision making power (skip to question 4)

3. The following is a list of statements about problems in running a business. Each statement starts with the phrase “In my business activity, I have problems...” Please indicate if you Strongly Disagree (SD), Disagree (D), are Neutral (N), Agree (A) or Strongly Agree (SA) with the following statements by putting an X next to the corresponding letters.

In my business activity, I have problems	How strongly do you agree with this statement?				
...networking with others in similar activities	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA
...finding good information about production/agribusiness/business best management practices	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA
...finding information about government programs related to my type of business	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA
...qualifying for government programs related to my type of business	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA
...knowing where/how to market my products	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA
...keeping up with environmental regulations related to my activity	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA
...keeping financial records	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA
...finding/affording a good lawyer	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA
...keeping good employees	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA
...handling my cash flow	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA
...gaining access to credit	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA
...completing loan forms and other important paperwork	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA
...being respected in my industry as a female business person	___ <sub>1</sub> SD	___ <sub>2</sub> D	___ <sub>3</sub> N	___ <sub>4</sub> A	___ <sub>5</sub> SA

4. For each of the following organizations, please state whether YOU personally have been a member or involved at any time during the last three years. If involved, please indicate whether or not you have held a leadership position in the last three years.

	Member of this organization		If Yes, have you held a leadership position?	
	No	Yes	No	Yes
General or commodity farm organizations (Farm Bureau, the Grange, National Farmers Union, American Dairy Association, National Wheat Board, etc)	___ <sub>0</sub> No	___ <sub>1</sub> Yes	___ <sub>3</sub> No	___ <sub>4</sub> Yes
Women's groups associated with farm or commodity organization (Farm Bureau Women's Committee, Cattlewomen, etc)	___ <sub>0</sub> No	___ <sub>1</sub> Yes	___ <sub>3</sub> No	___ <sub>4</sub> Yes
Cooperative extension activities (county boards, 4-H etc)	___ <sub>0</sub> No	___ <sub>1</sub> Yes	___ <sub>3</sub> No	___ <sub>4</sub> Yes
Any non-agricultural business organization for women, local, regional or national	___ <sub>0</sub> No	___ <sub>1</sub> Yes	___ <sub>3</sub> No	___ <sub>4</sub> Yes

## DEMOGRAPHIC INFORMATION

1. Please indicate your gender.

Male       Female

2. What is your ethnic background? Check all that apply.

<sub>1</sub> African American      <sub>2</sub> Native American      <sub>3</sub> Caucasian  
<sub>4</sub> Hispanic      <sub>5</sub> Asian      <sub>6</sub> Other

3. What is your marital status?

<sub>0</sub> Never married      <sub>1</sub> Married or living with a significant other  
<sub>2</sub> Divorced/Separated      <sub>3</sub> Widow/Widower

4. Number of adults (18 or older) living in your household \_\_\_\_\_ adults

5. Number of children (17 or younger) living in your household. \_\_\_\_\_ children

6. What is your highest level of education?

<sub>0</sub> Did not complete high school      <sub>1</sub> High school degree  
<sub>2</sub> Some college      <sub>3</sub> Two year college/technical school degree  
<sub>4</sub> Four year college degree      <sub>5</sub> Some post graduate work  
<sub>6</sub> Post graduate degree

7. What is your age? Please select from the following categories.

<sub>0</sub> Under 25      <sub>1</sub> 25 to 34      <sub>2</sub> 35 to 44      <sub>3</sub> 45 to 54  
<sub>4</sub> 55 to 64      <sub>5</sub> 65 to 74      <sub>6</sub> 75 and over

8. What was your total household income for 2008. Please select from the following categories

<sub>0</sub> Under \$20,000      <sub>1</sub> \$20,001 to \$49,999      <sub>2</sub> \$50,000 to \$99,999  
<sub>3</sub> \$100,000 to \$149,999      <sub>4</sub> \$150,000 and above

9. What percent of that total household income in question 11 above came from agricultural production and/or agricultural processing activities?

<sub>0</sub> 0 percent      <sub>1</sub> 1 to 25 percent      <sub>2</sub> 26 to 50 percent  
<sub>3</sub> 51 to 75 percent      <sub>4</sub> 76 to 100 percent

10. Have you completed one of these surveys at a previous Arkansas Women in Agriculture conference?

Yes

If so, please check which year(s) \_\_\_\_\_2004      \_\_\_\_\_2005      \_\_\_\_\_2006      \_\_\_\_\_2007      \_\_\_\_\_2008

\_\_\_ No

Thank you for participating in our survey. Please use the next page to share with us your comments/concerns.

**FOR WOMEN INVOLVED IN AGRICULTURE PRODUCTION, PROCESSING OR AGRIBUSINESS**

Please use this space to

- 1) elaborate on your greatest challenges - especially if they have not been introduced in this survey
- 2) tell us whether or not educational programs are needed to assist you in meeting those challenges. If so, what types of programs would you like to see developed through the university, ARWIA and other ?

**Comments:**

**Any questions? Please contact Jennie Popp, Ph.D. Department of Agricultural Economics and Agribusiness, University of Arkansas, 479-575-2279, 479-387-2906**