

North and Western Maryland Agriculture Needs Assessment 2017 Survey Results

(*Allegany, Baltimore, Carroll, Frederick, Garrett, Harford, Washington*)



About University of Maryland Extension

University of Maryland Extension (UME) is a statewide, non-formal education system administered through the University of Maryland, College of Agriculture and Natural Resources and the University of Maryland Eastern Shore. UME educational programs and problem-solving assistance are based on the research and experience of land-grant universities such as the University of Maryland, College Park and are available to all citizens in each of Maryland's 23 counties and Baltimore city. Visit <http://extension.umd.edu> for more information.

Executive Summary

The University of Maryland Extension (UME) conducted an agricultural needs assessment for the seven counties in northern and western Maryland in 2017. This survey will help UME faculty and administration understand issues concerning regional agriculture, identify agricultural and educational needs and focus UME agricultural training and resources.

The survey was conducted in 2017 and included four sections:

- 1) Industry priorities, concerns and viability;
- 2) Research and education needs;
- 3) Education and training preferences; and
- 4) Demographic and farm information.

UME researchers sent the survey to farmers across the seven counties in northern and western Maryland in 2017, with 172 farmers (29% response rate) responding by paper or online. The respondents operate a wide range of size and types of farms and the results for gender, ethnicity, race and age align with demographic data from the 2012 Agriculture Census.

- One-third of the respondents reported tilling 101-500 acres. This was followed by 25% reporting 51-100 acres and 20% reporting 0-10 acres.
- Fifty-three percent farm full time with 66% farming more than 20 years and 14% farming 11-20 years.
- The majority of respondents reported raising livestock (29%) and field crops (28%), followed by fruit and/or vegetables (13%). Many reported farming in more than one of the commodity categories.
- The majority of those responding to the survey were male (75%), non-Hispanic (100%) and white (96%). Over 58% of farmers were over the age of 55 with the majority being 55-64 (34%) and 65-75 (24%).

Results from industry priorities and viability were predominately related to regulatory, legislative and production-related topics. Those with the highest average importance include:

- Legislators understanding of agriculture production and its importance to the economy;
- Public understanding of agricultural production and its importance to the economy;
- Maintenance and protection of adequate agricultural land; and
- Farmer involvement in the legislative process and regulation development.

Major farm concerns include loss of farmland due to urban encroachment and farm transfer to the next generation. Industry concerns include agriculture maintaining its viability and profitability in years to come and the public image of agriculture.

The 26-question survey included questions about the knowledge, education and training respondents would like to receive. Soil science and increasing soil health and current regulations and environmental laws were the two most critical education topics, followed by animal nutrition and feeding, use of records to improve financial decisions and integrated pest management.

Education delivery preferences included half-day seminars or workshops, one-on-one education or consulting and Extension newsletters. Priority services for UME to provide include sources of educational material, interpretation and assistance with agricultural regulations, research data from field and variety trials and agricultural promotion and education to consumers and non-farmers.

Moving forward, UME will continue to analyze the data and prepare a plan to meet the needs of farmers and land-

Agriculture continues to be the foundation of Maryland's northern and western counties' commercial and resource base. There is a strong farm industry and agriculture is the major land use, with 34% of the land area in these counties used for agricultural production (USDA NASS, 2012). All county comprehensive planning documents recognize this segment as a significant and important industry that must be protected. However, maintaining viable farm operations is a complex endeavor given complicated state and federal regulatory environments, the agricultural economy and the continued development pressure in the area.

A farm is considered to be economically viable "when it generates enough revenue from its operations to cover all variable and fixed costs of production, all appropriate family living expenses, and capital replacement costs" (Adelaja, 2004). University of Maryland Extension (UME) is committed to supporting viable farms through research and education that address critical needs of farmers and producers. Periodic assessments can help identify those critical needs and determine the optimal use of land-grant university resources to deliver relevant research and education.

In Spring 2017, UME conducted an agricultural needs assessment for the seven counties along Maryland's northern and western border including Allegany, Baltimore, Carroll, Frederick, Garrett, Harford and Washington (Figure 1).

The goals of the needs assessment are to:

Help UME understand issues concerning agriculture;
Identify agricultural educational needs; and
Focus UME agricultural training and resources.

The survey concentrated on four critical areas:

- 1) Industry priorities, concerns and viability;
- 2) Research and education needs;
- 3) Education and training preferences; and
- 4) Demographic and farm information.

Figure 1. Agriculture is a major industry of Maryland's Northern and Western Counties



The needs assessment survey reached a suitable number of farmers in the seven western and northern counties. The respondents were consistent with current census data for demographics and farm operations. The survey responses to questions about viability and education questions revealed overarching themes in the areas of agricultural and land regulation, crop and livestock production, farm management and educating the public about agriculture production.

The survey responses indicate that the agriculture community is consistently concerned with external pressures from regulations as well as interaction and communication with the non-farming public. There is concern about the industry maintaining its viability and profitability in the years to come, the public image of agriculture and local, state and federal environmental regulations.

On the farm, respondents were concerned about passing the farm to the next generation, consumer education and the loss of farmland due to urbanization. Manure and nutrient management can be considered both production (internal) as well as regulatory (external) concerns. Farmers were also concerned about communication with family and farm employees. An understanding of legal liability and market/price risk are other external pressures that repeat in the responses to this survey.

The results of the 2017 needs assessment survey will provide UME with a clearer understanding of agricultural needs and how UME can better support agriculture and direct educational and research resources in the future.

Agriculture in Maryland's Northern and Western Counties

The seven counties surveyed included 5,440 farms and 711,091 acres in agricultural land. Figure 2 describes the amount of

Crops and Livestock:

- Grain crops account for approximately 268,000 acres and there are about 340,000 cattle. Once the region's largest industry, 355 of the State's 463 dairy farms (77%) are located in these seven counties (USDA NASS, 2012).
- Hay remains a significant and important sector of Northern and Western Maryland agriculture, covering nearly 130,000 acres to feed the region's livestock (USDA NASS, 2012).
- Corn and soybeans are the dominant commodity crop in these counties and are primarily raised for feed for animal consumption.
- Soft red winter wheat is grown primarily for the human consumption market and livestock feed market, and straw is baled for the livestock and construction industry markets.
- Farmers grow vegetable crops and specialty crops in the local season, May through October. These are sold at a variety of markets including wholesale, roadside stands, Community-Supported Agriculture (CSAs) operations, on farms or at farmers markets. Vegetables account for 6,897 acres in the seven counties.
- There is a growing trend for new farmers, specialty crops and alternative markets such as vineyards, greenhouse, vegetable and equine industries.
- Scattered across all of the Western Shore are conservation and Best Management Practices (BMPs) that include buffer strips, grassed waterways, contour farming, waste storage facilities and rotational grazing programs. No-till farming is a common practice, which reduces soil erosion and preserves soil health.
- Farmers employ nutrient management plans to meet crop needs while reducing both nutrient and economic losses.

While agriculture remains strong and viable, development pressure, regulations, land cost and high input prices continue to challenge the industry. Agriculture has become a business with increased risk and slim profit margins. Farmers must diversify their products, learn new practices and be savvy businesspersons to succeed in today's industry.

Figure 2: County-level Census data of the Northern and Western counties include over 5,000 farms and more than 700,000 acres of agricultural land

County	Land in Farms (acres)	Number of Farms	Average Size of Farms (acres)
Allegany	36,261	291	125
Baltimore	70,419	640	110
Carroll	132,630	1,092	121
Frederick	181,512	1,308	139
Garrett	95,197	667	143
Harford	65,472	582	112
Washington	129,600	860	151
Total	711,091	5,440	129

USDA Census of Agriculture 2012

Survey Methods

Survey respondents operate a wide range of size and types of farms and results for gender, ethnicity, race and age align with demographic data from 2012 Agriculture Census.

Individual responses are confidential and the University of Maryland Institutional Review Board approved the research project. The 26-question survey included Likert type, multiple choice and write-in responses.

To ensure the best response rate, adequate coverage, and minimal error and nonresponse, Dillman's (Dillman, Smyth, & Christianson, 2009) Tailored Design Method (TMD) was used.

The survey questions were developed using a team approach to elicit subject-matter, organizational, and industry expertise. The survey was conducted by mail or web link in March and April 2015. Questions included viability of the agriculture industry, research and education needs, and demographic/farm information.

There were 172 responses to the survey (29% response rate). The team was pleased with the response rate considering the length of the survey, the time of the year and standard rates of survey completion for farmers (Pennings, Irwin, & Good, 2002).

Survey respondents were compared to 2012 Census of Agriculture reports. Figure 3 shows the comparison and that the respondents are reflective of the current farming population.

- Farmers in six of the seven counties targeted responded to the survey. Allegany County did not have any responses.
- One-third of the respondents reported tilling 101-500 acres. This was followed by 25% reporting 51-100 acres and 20% reporting 0-10 acres.
- Fifty-three percent farm full time with 66% farming more than 20 years and 14% farming 11-20 years.
- The majority of respondents reported raising livestock (29%) and field crops (28%), followed by fruit and/or vegetables (13%).
- Many respondents reported farming in more than one of the commodity categories.
- The majority of respondents were male (75%), non-Hispanic (100%) and white (96%).
- More than 58% of farmers were over the age of 55 with the majority being in the range of 55-64 (34%) and 65-75 (24%).

Figure 3

Characteristic	2012 USDA Agriculture Census – Counties (7)	All Respondents n=172
Average farm size	129 acres	101-500 acres (30%)
Percent male	81%	75%
Percent female	19%	25%
Average age	58 years	55-64 (34%)
Percent white	98%	96%
Full-time farming	46%	53%
Farming tenure	25 years	More than 20 (66%)
Commodities	Livestock, Grain	Livestock (28%), Grain (28%)

Other items of interest about survey respondents include:

- The majority of respondents had college experience, including a college degree (29%), some college (24%) and Masters or Doctorate (20%).
- Family members made up the majority of full- and part-time employees (86% and 85%, respectively), while non-family workers were mostly seasonal employees (50%).
- Approximately 92% of farms have wireless, high speed internet or smart phones and utilize social media outlets including Facebook (26%) and YouTube (17%).

Viability of the Agriculture Industry

Farmers were asked to rank level of importance about farms and the agriculture industry.

University of Maryland Extension's goal is to provide farmers and landowners knowledge and resources to help ensure viability in both the short- and long-term. Farm viability was defined as the "capacity to operate" and a "reasonable chance of success" (Pennings, Irwin, & Good, 2002).

Extension's goal is to provide farmers and landowners with the knowledge and resources to be viable both short and long term. The categories of questions that received the highest mean scores were regulations and legislation, farm management, and agriculture production (Figure 4).

Regulations and Legislation

In the area of regulations and legislation, the top three items of importance included: 1) Legislators' understanding of agriculture production and its importance to the economy; 2) Public understanding of agricultural production and its importance to the economy; and 3) Maintenance and protection of adequate agricultural land (Figure 5).

Figure 4. Level of Importance to Farm Viability

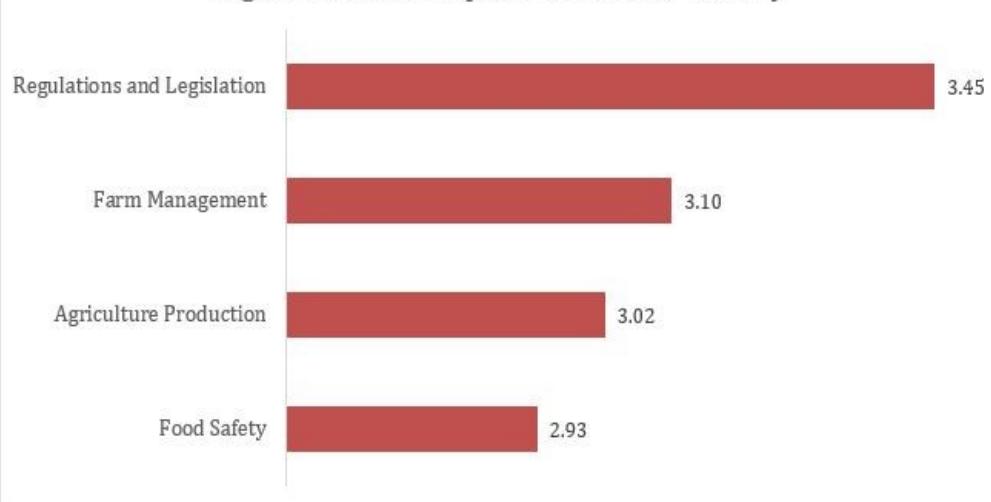
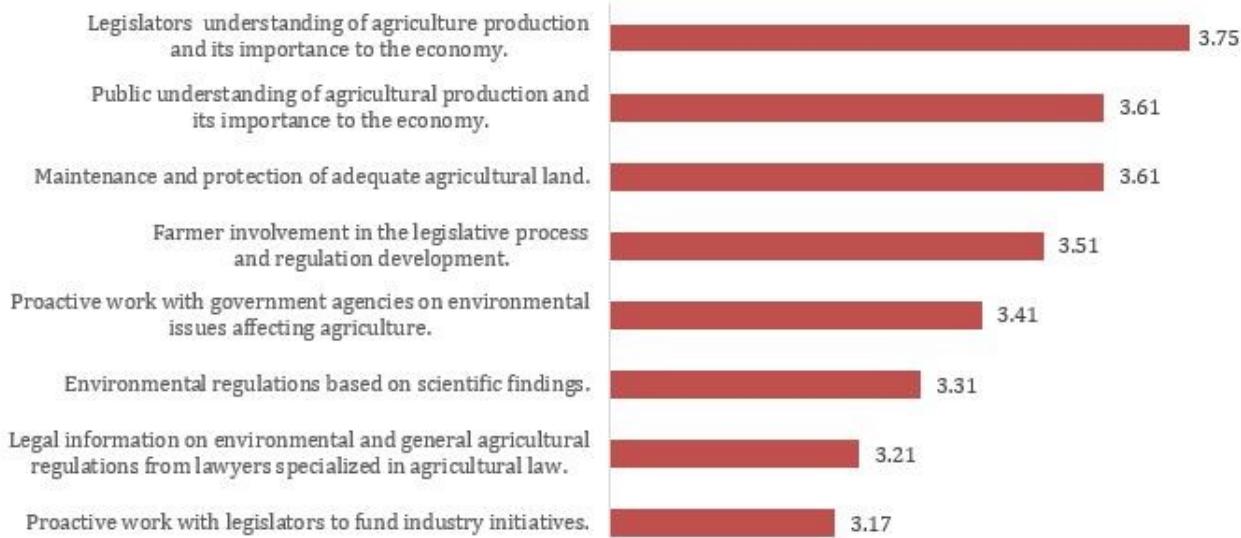


Figure 5. Viability of the Agriculture Industry: Regulations and Legislation



Farm Management

In the area of farm management, the top three items of importance included: 1) Marketing opportunities for local products; 2) Availability of skilled and unskilled farm workers; and 3) Availability of wholesale and processing markets (Figure 6).

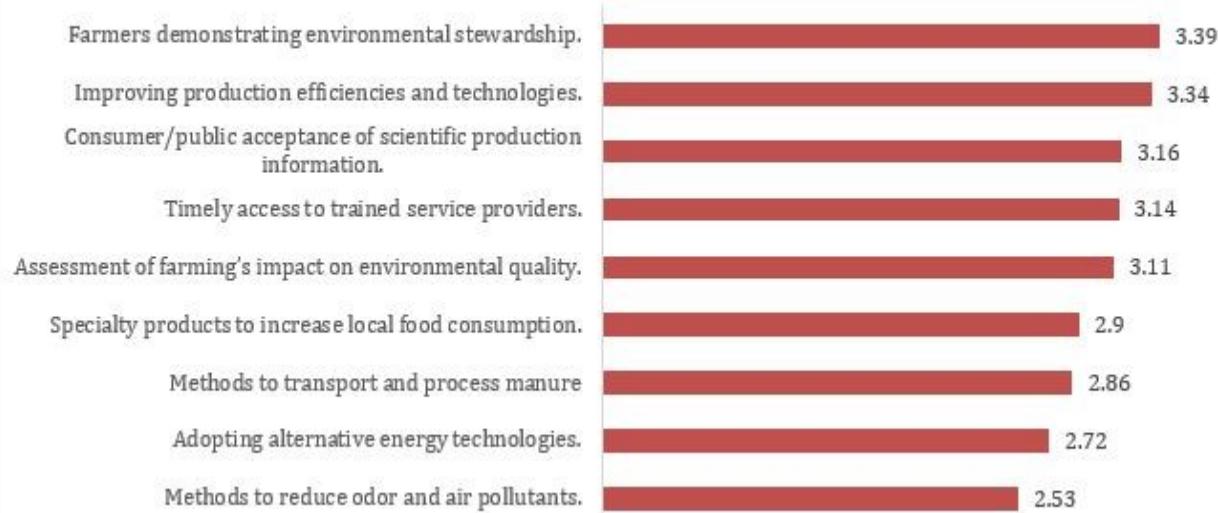
Figure 6. Viability of the Agriculture Industry: Farm Management



Agriculture Production

In the area of agriculture production, the top three topics of importance were: 1) Farmers demonstrating environmental stewardship; 2) Improving production efficiencies and technologies; and 3) Consumer/public acceptance of scientific production information (Figure 7).

Figure 7. Viability of the Agriculture Industry: Agriculture Production



Food Safety

The top three items of food safety importance included: 1) Methods to improve disease resistance; 2) Biosecurity practices on the farm; and 3) Implementation of Good Agricultural Practices (GAPs) and Good Agricultural Handling (Figure 8).

Figure 8. Viability of the Agriculture Industry: Food Safety



Agriculture Concerns

Farmers were asked about their levels of concern regarding their farm and the agriculture industry.

The top three concerns for farms were: 1) Loss of farm land due to urban encroachment; 2) Farm transfer to the next generation; and 3) Consumer understanding of product labels, (hormone, antibiotic free, organic, GMO) (Figure 9).

The top three industry concerns were: 1) Agriculture maintaining its viability and profitability in the years to come; 2) Public image of agriculture; and 3) Planning for and meeting changing local, state and federal environmental regulations. Farmers overall were more concerned about issues on the farm than issues related to the industry (Figure 10).

Figure 9. Concerns

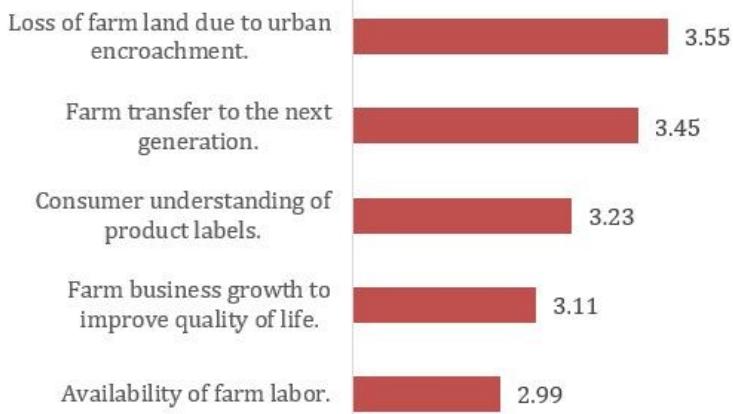
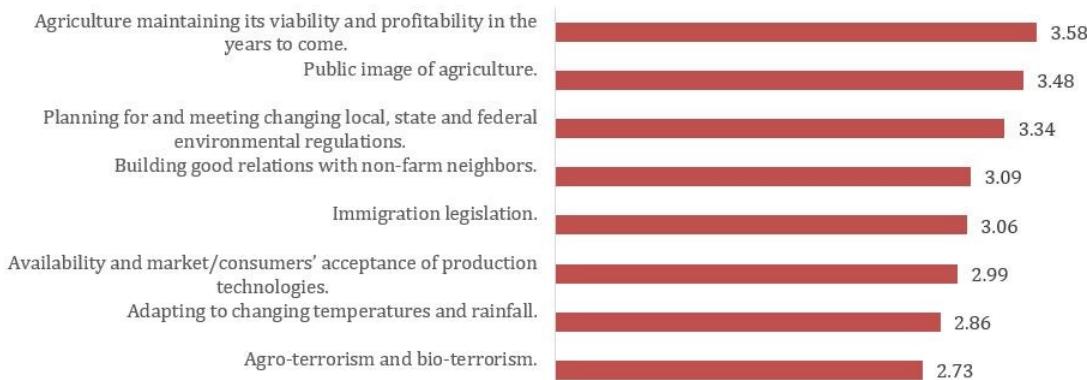


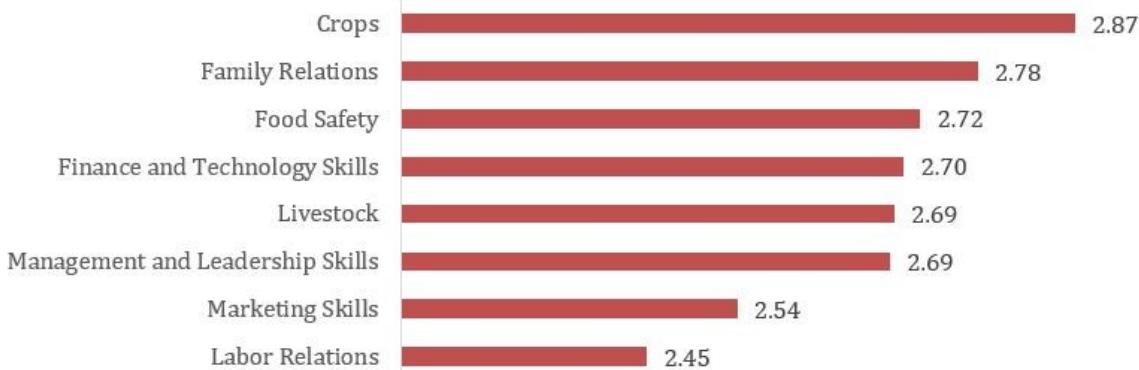
Figure 10. Industry Concerns



Research and Education Needs

Farmers were asked to indicate how much knowledge and training they wanted in a variety of topics. UME is using the survey results to focus efforts on providing education and outreach in desired areas. The survey asked about eight major topic areas, with each area having multiple sub-areas. Crops, family relations and food safety were the topics of most interest (Figure 11).

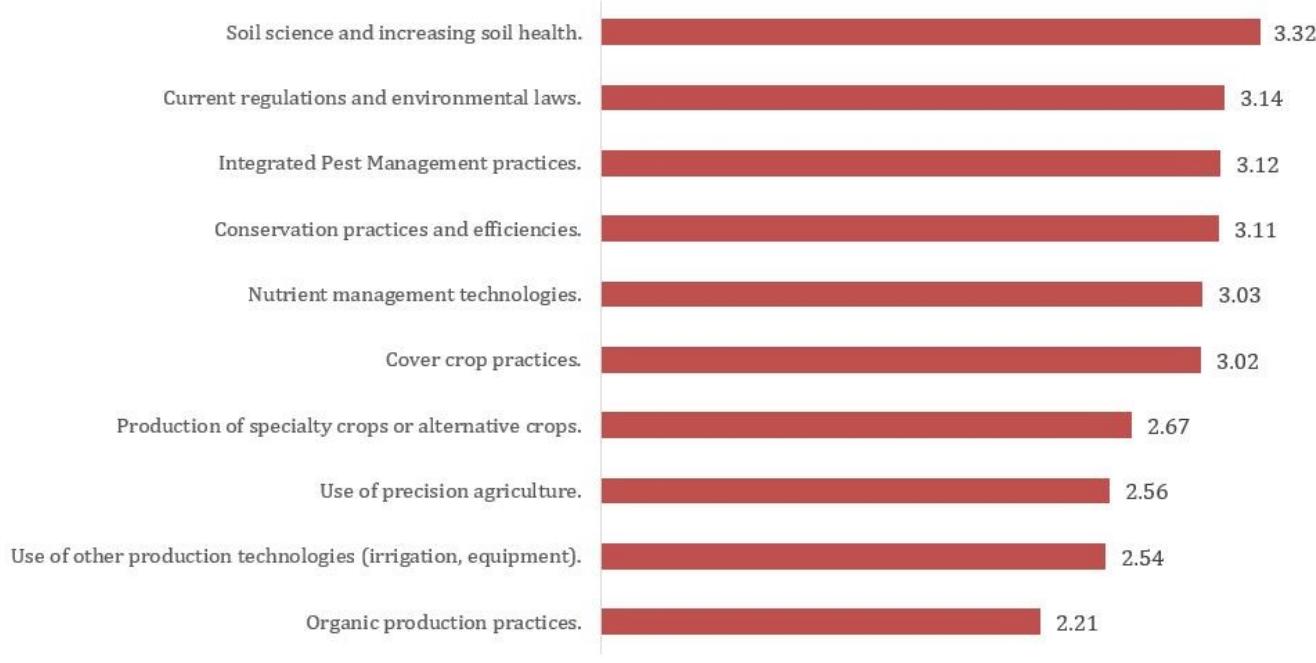
Figure 11. Research and Education Needs: Grouped Average



Production Management

In the area of production management for crops, the top three topics were: 1) Soil science and increasing soil health; 2) Current regulations and environmental laws; and 3) Integrated Pest Management practices (Figure 12).

Figure 12. Research and Education Needs: Crop Production



In the area of production management for livestock, the top three topics were: 1) Current regulations and environmental laws; 2) Animal nutrition and feeding; and 3) Grazing management practices and economics (Figure 13).

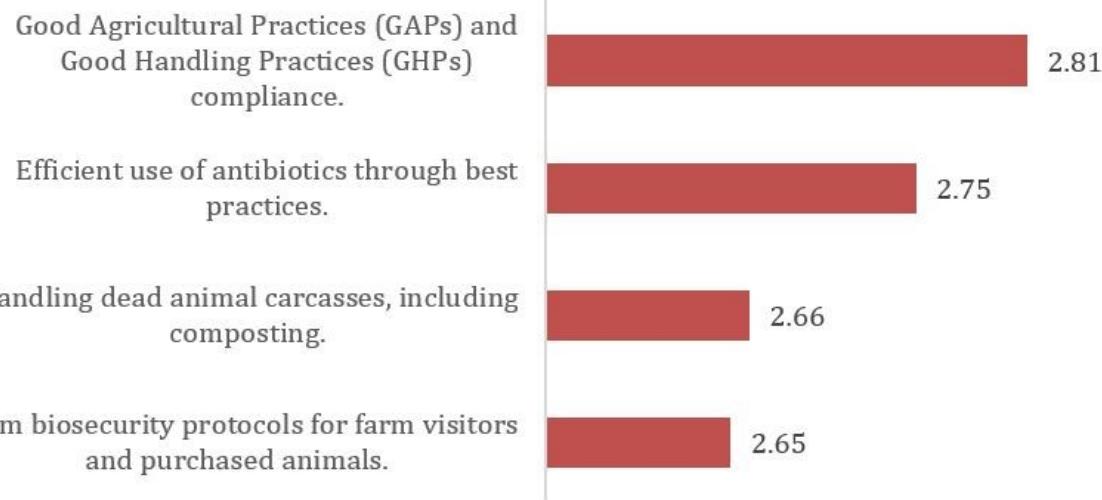
Figure 13. Research and Education Needs: Livestock Production



Food Safety

The top three food safety topics were: 1) Good Agricultural Practices (GAPs) and Good Handling Practices (GHPs) compliance; 2) Efficient use of antibiotics through best practices; and 3) Handling dead animal carcasses, including composting (figure 14).

Figure 14. Research and Education Needs: Food Safety



Farm Management

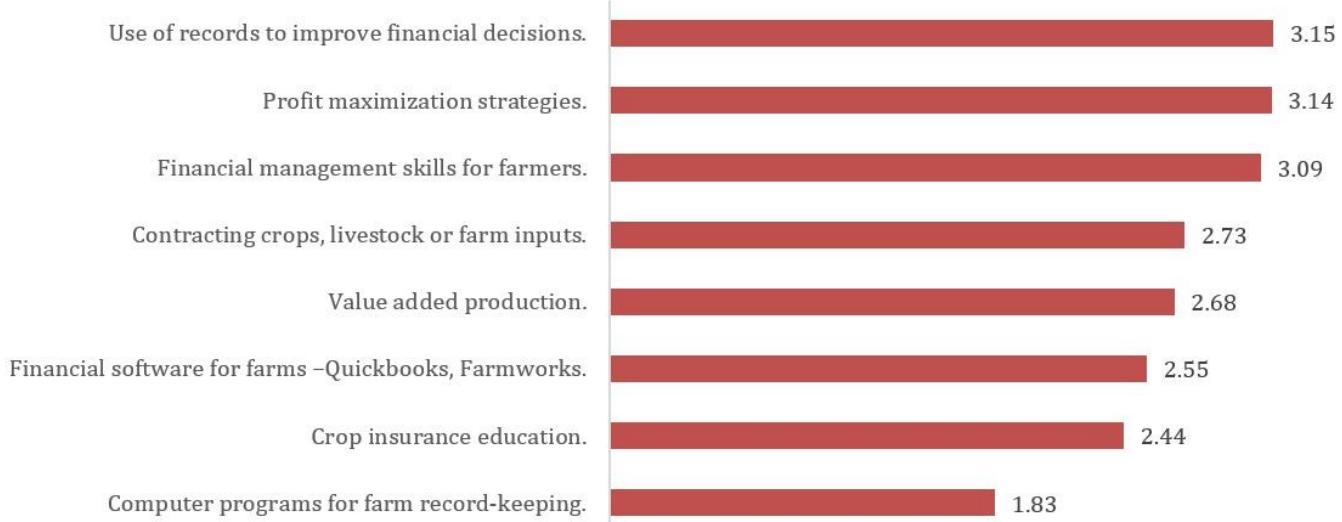
Respondents were most concerned about receiving information and training about: 1) General farm business management; 2) Retirement planning and farm transition; and 3) Business organization and structure (Figure 15).

Figure 15. Research and Education Needs: Management and Leadership Skills



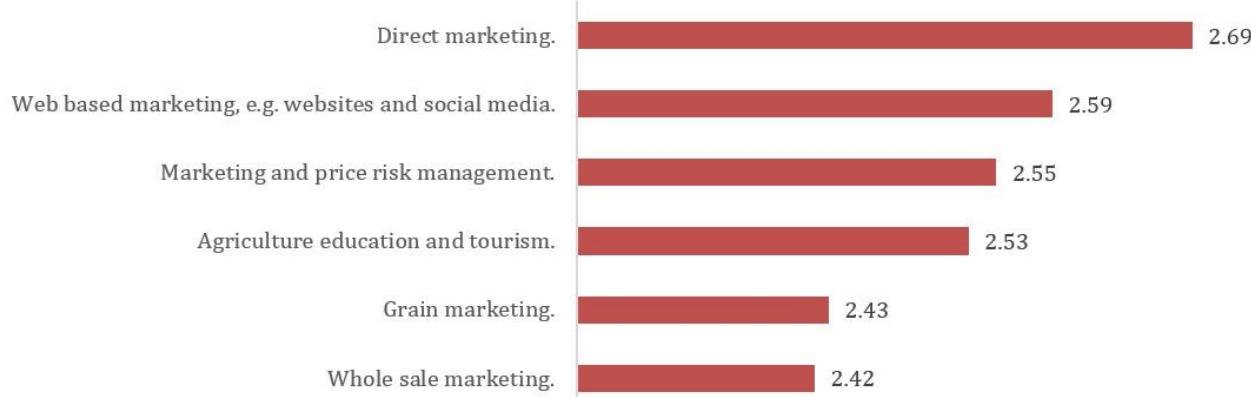
In the area of finance and technology skills, the top three topics were: 1) Use of records to improve financial decisions; 2) Profit maximization strategies; and 3) Financial management skills for farmers (Figure 16).

Figure 16. Research and Education Needs: Finance and Technology Skills



The top three marketing skills topics were: 1) Direct marketing; 2) Web-based marketing; and 3) Marketing and price risk management (Figure 17).

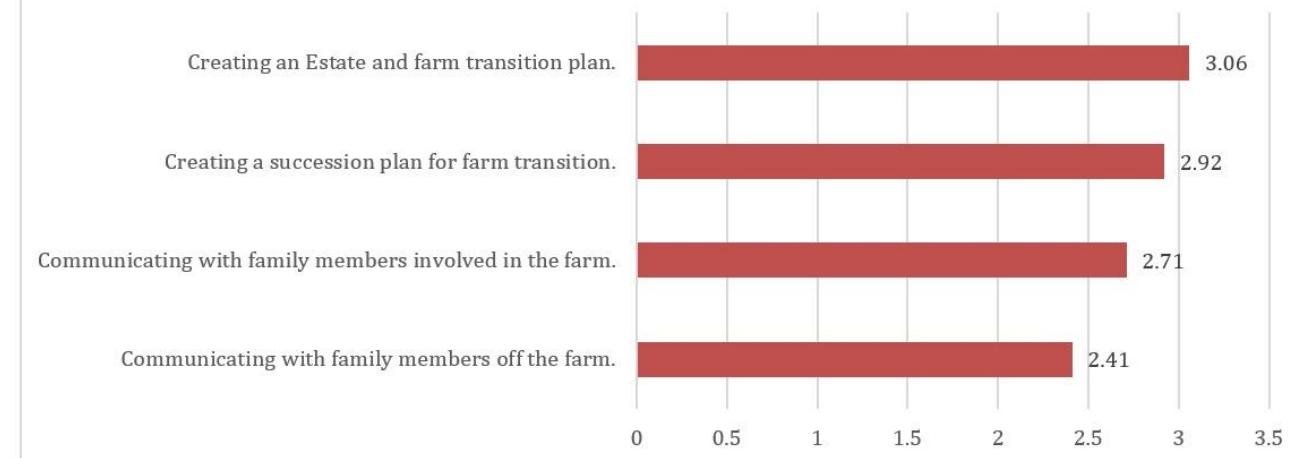
Figure 17. Research and Education Needs: Marketing Skills



Human Resource Management

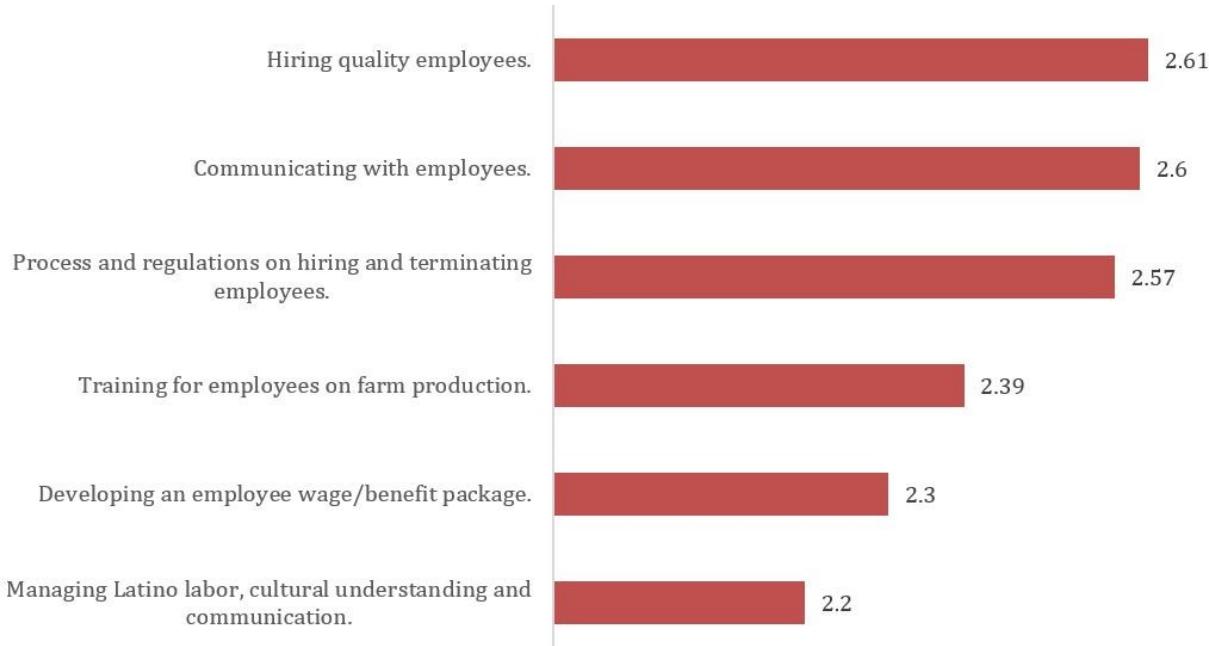
Respondents indicated that the transition of farms to family members is an important area of concern. The top three topics were: 1) Creating an estate and farm transition plan; 2) Creating a succession plan for farm transition; and 3) Communicating with family members involved in the farm (Figure 18).

Figure 18. Research and Education Needs: Family Relations



In the area of labor relations, the top three topics were: 1) Hiring quality employees; 2) Communicating with employees; and 3) Process and regulations on hiring and terminating employees (Figure 19).

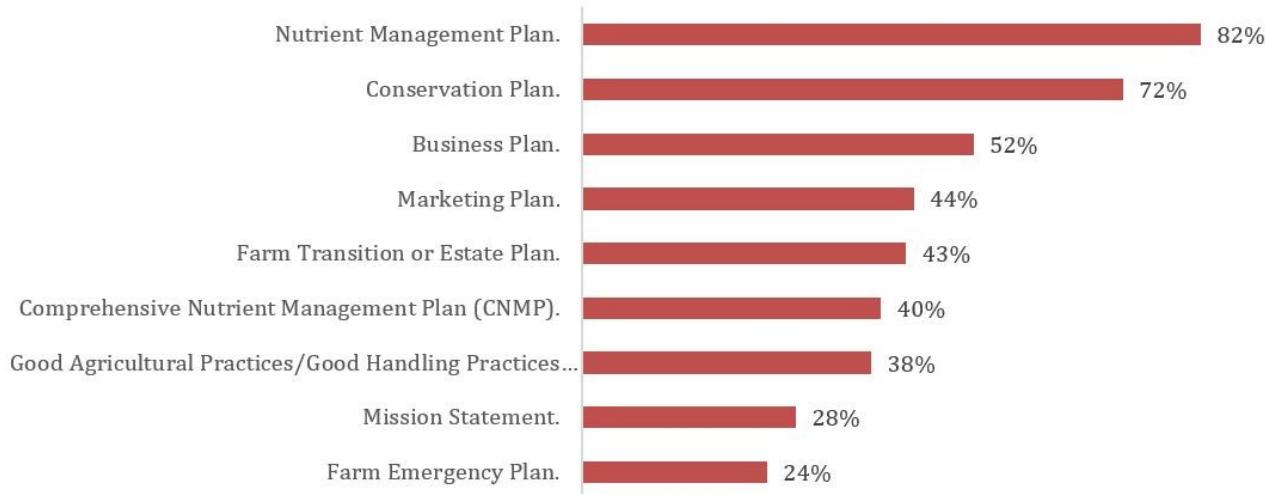
Figure 19. Research and Education Needs: Labor Relations



Education and Training Preferences

The survey included questions to gain additional information about the farms, business and operations. The majority of farms had nutrient management plans (82%), conservation plans (72%) and business plans (52%) (Figure 20). Farmers value information sources that help them manage and operate their farms. They reported that other farmers, UMD Extension Agents/Educators and veterinarians are valuable information sources.

Figure 20. Surveyed farms have the following plans:



It was also important to discover how farmers would like to receive Extension education and training in order for UME to engage in meaningful program planning program and outreach. Respondents preferred to receive information in extension newsletters, half-day seminars or workshops and hands-on training (Figure 21).

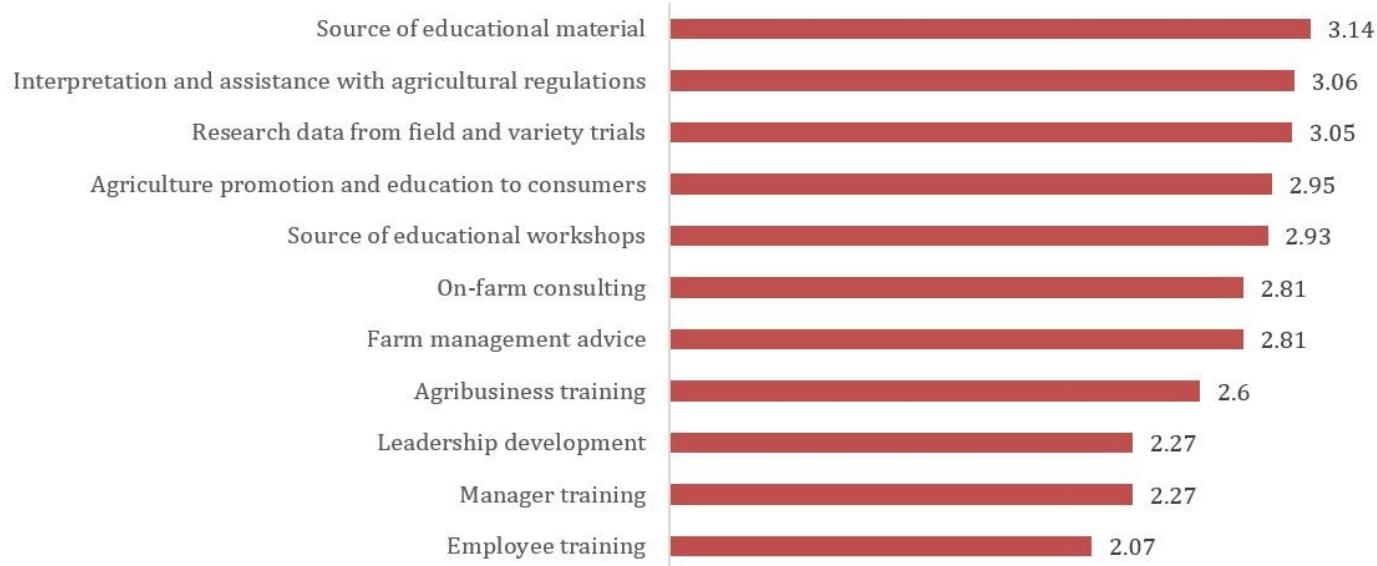
Figure 21. Receive Information By:



Education Priorities

The survey results identified the top four priorities for services that respondents want UME to provide farms and the agriculture industry in the next 10 years: 1) source of educational material; 2) interpretation and assistance with agricultural regulations; 3) research data from field and variety trials; and 4) agriculture promotion and education to consumers and non-farmers (Figure 22). The source of educational workshops, on-farm consulting, and farm management advice were also important.

Figure 22. Ranking of UME Priorities



Comments and Quotes

Throughout the survey, there were three open-ended questions to obtain additional input and suggestions from respondents. The first question asked respondents to provide advice to beginning famers. The majority of written responses were about marketing, production and financial. Examples include:

- ▶ “Find a niche or specialty. Know your cost of production. Answer the questions: Is farming the life style for you?”
- ▶ “Niche markets. Value added products. Smart - accounting.”
- ▶ “Do not go in over your head in debt to get the latest a best equipment. Walk before you run and learn from your older sources of experience, but use your youth and drive to take the next steps.”

The second question asked respondents to provide thoughts on agriculture and farming’s biggest challenges in the next five years. The majority of written responses were about regulation and government and financial issues. Examples include:

- ▶ “Time management, resource management, money management, stay involved with your community and take advantage of the opportunities for training and innovation.”
- ▶ “Excess regulation and general public’s lack of ag understanding”
- ▶ “Affording farmland in the State of Maryland. Either renting or buying!”

The third and final question asked respondents to provide thoughts on how the UMD Extension team can better serve farms. The majority of written responses were about new information and production, and education and research. Examples include:

- ▶ “Workshops to explain and provide compliance advice on new laws and regulations that affect my farm.”
- ▶ “Keep up with new technology and pass it on to the farmers, just like you have always done.”
- ▶ “Continue to provide resources and access to specialists in individual fields.”

Conclusions

In conclusion, the needs assessment survey reached a suitable number of farmers in the seven western and northern counties. Respondents were consistent with current census data for demographics and farm operations. Through the viability and education questions there were overarching themes in the areas of agricultural and land regulation, crop and livestock production, farm management and educating the public and education about agriculture production.

Responses indicate that the agriculture community is consistently concerned with external pressures from regulation as well as interaction and communication with the non-farming public. There is concern about the industry maintaining its viability and profitability in the years to come, the public image of agriculture and local, state and federal environmental regulations.

On the farm, respondents were concerned about passing the farm to the next generation, the loss of farmland due to urbanization and consumer education. Manure and nutrient management can be considered both production (internal) as well as regulatory (external) concerns. The issue of communication also extended internally to family and farm employees. An understanding of legal liability and market/price risk are other external pressures that repeat in this survey.

Recommendations

The survey will continue to be analyzed and a detailed plan of action will be created using the information from the needs assessment.

Acknowledgements

Thank you to the farmers that took the time to complete the survey and share this important information.

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The information presented has met UME peer review standards, including internal and external technical review.

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