

Eastern Shore Agriculture Needs Assessment 2015 Survey Results



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 nine counties on the Eastern Shore of Maryland in 2015. This survey will help UME understand issues concerning Eastern Shore agriculture, identify agricultural and educational needs and focus UME agricultural training and resources.

The survey was conducted in 2015 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. Results were received from 295 farmers through paper or online surveys.

A third of the respondents report tilling 101-500 acres. This was followed by 17% reporting 0-10 acres and 13% reporting 501-1,000. Sixty percent farm full time with 74% farming more than 20 years and 15% farming 11-20 years. The majority of responders report farms growing field crops (78%), followed by livestock (26%), fruit and/or vegetables and poultry (29%). Many report farming in more than one of the commodity categories. Those responding to the survey were male (78%), non-Hispanic (100%) and white (98%). Over 85% of farmers were over the age of 45 with the majority being in the range of 55-64 (34%), 45-54 (21%) and 65-75 (20%). The results for gender, ethnicity, race and age are consistent with data from the 2012 Agriculture Census.

Results from industry priorities and viability were predominately related to regulatory, legislative and production-related topics. Those with the highest importance according to mean include legislators' understanding of agriculture production and its importance to the economy (3.79); public understanding of agricultural production and its importance to the economy (3.66); farmer involvement in the legislative process and regulation development (3.60); maintenance and protection of adequate agricultural land (3.53); environmental regulations based on scientific findings (3.53); farmers demonstrating environmental stewardship (3.49); and improving production efficiencies and technologies (3.39). Major farm concerns include farm transfer to the next generation and loss of farmland due to urban encroachment. Industry concerns include agriculture maintaining its viability and profitability in years to come and the public image of agriculture.

Survey respondents were asked about the desired knowledge, education and training they would like to receive. Current regulations and environmental laws ranked first in the list of critical education topics followed by nutrient management technologies, soil science and increasing soil health, integrated pest management practices, conservation practices and efficiencies and profit maximization strategies.

Educational preferences included newsletters, half-day seminars or workshops and hands-on training. Priority services would be the interpretation and assistance with agricultural regulations, research data from field and variety trials and on-farm consulting. Moving forward, UME will continue to analyze the data and prepare a plan to respond to the requests and to meet the needs of farmers and landowners in the nine Eastern Shore counties.

Introduction

Agriculture continues to be the foundation of the Eastern Shore's commercial and resource base. There are strong farm industries and agriculture is the major land use. 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 complex state and federal regulatory environments, the agricultural economy, and the continued urbanization of 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 of 2015, UME conducted an agricultural needs assessment for the nine Eastern Shore counties of Caroline, Cecil, Dorchester, Kent, Queen Anne’s, Talbot, Somerset, Wicomico, and Worcester (Figure 1).



Figure 1. Agriculture, fishing and tourism are the major industries of Maryland’s Eastern Shore

The goals of the needs assessment are to:

- Help UME understand issues concerning Eastern Shore 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.

The needs assessment survey reached a suitable number of farmers in the nine counties. The respondents were consistent with current census data for demographics and type of 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. Results from industry priorities and viability were predominately related to regulatory, legislative and production topics. Major farm concerns include farm transfer to the next generation and loss of farmland due to urban encroachment. Industry concerns include agriculture maintaining its viability and profitability in years to come and the public image of agriculture.

The results of the 2015 needs assessment survey will provide UME with a clearer understanding of agriculture needs and how UME can better support agriculture and direct educational and research resources in the future.

Agriculture on the Eastern Shore

The nine Eastern Shore counties include a total of 3,972 farms and 1,011,322 acres in agricultural land. Figure 2 describes the amount of land in farms, the number of farms and the average size of farms for each of the nine counties.

- Grain crops, vegetables and poultry are the main industries on the shore with many other types of crops and livestock mixed in.
- Grain crops account for 809,973 acres and are grown to feed the poultry industry including 861 farms and 304 million birds annually.
- Vegetable crops and specialty vegetables are grown in the local season, May through October. These are sold at a variety of markets including wholesale, roadside stands, on farms or at a farmers market.
- New farmers, specialty crops and alternative markets such as vineyards, greenhouse, vegetable and equine industries.

Figure 2: County level census data of the nine Eastern Shore counties include almost 4,000 farms and over a million acres of agricultural land

County	Land in farms (acres)	Number of farms	Average size of farms (acres)
Caroline	150,357	658	229
Cecil	76,667	496	155
Dorchester	126,420	423	299
Kent	133,201	367	363
Queen Anne’s	156,941	530	296
Somerset	65,212	286	228
Talbot	119,481	328	364
Wicomico	83,739	510	164
Worcester	99,304	374	266
Total	1,011,322	3,972	263

USDA Census of Agriculture, 2012

- Vegetables account for 6,897 acres in the nine 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 Eastern Shore are conservation and Best Management Practices (BMPs) that include buffer strips, grassed waterways, waste storage facilities and rotational grazing programs.
- No-till farming is a common practice which reduces soil erosion and preserves moisture. Nutrient management plans are employed by farmers 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 along with minimum profit margins. Farmers must diversify their products, learn new practices and be savvy businessmen to succeed in the industry today.

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.

The method used to collect needs assessment data was a survey questionnaire containing 26 questions and included Likert type, multiple choice and write-in responses. Individual responses are confidential and the research was approved by the University of Maryland Institutional Review Board. 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 295 responses to the survey (29% response rate to the paper-based survey). 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. The survey responses were representative of the agriculture population. To further confirm this, 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.

Figure 3. Survey results align with 2012 Census of Agriculture

Characteristic	2012 USDA Agriculture Census – Counties (9)	Survey Respondents
Average farm size	263 acres	101-500 acres
Percent male	85%	79%
Percent female	15%	21%
Average age	57 years	55-64 years (34%)
Percent white	95%	98%
Full-time farming	53%	61%
Farming tenure	26 years	More than 20 years (73%)
High-speed Internet	96%	92% (includes mobile access)
Commodities	Corn, soybeans, poultry	Field crops

- Responses were received from farmers in all nine of the Eastern Shore counties.
- A third of the respondents report tilling 101- 500 acres. This was followed by 17% reporting 0-10 acres and 13% reporting 501 -1,000.
- Sixty one percent farm full time with 73% farming more than 20 years and 15% farming 11-20 years.
- The majority of responders report farms growing field crops (77%) followed by livestock (26%), fruit and/or vegetables (24%) and poultry (22%). Many report farming in more than one of the commodity categories.

- Those responding to the survey were male (79%), non-Hispanic (100%) and white (98%). Over 87% of farmers were over the age of 45 with the majority being in the range of 55-64 (33%), 65-75 (22%) and 45-54 (21%). The results for gender, ethnicity, race and age are consistent with data from the 2012 Agriculture Census.

Other items of interest about survey respondents include:

- Formal education was an important characteristic of our responses, with many individuals having either a college degree (38%), some college (17%) and Masters or Doctorate (17%).
- Access to internet was also high, as 92% of farms have wireless, high-speed Internet or smart phones and utilize social media outlets including Facebook (70%), YouTube (44%) and LinkedIn (22%).
- Farms were asked about full-time part-time and seasonal employees. They were also asked to distinguish between family employees and non-family employees. Family members made up most of full and part- time employees (77% and 64%, respectively), while non-family comprised mostly of seasonal employees (55%).

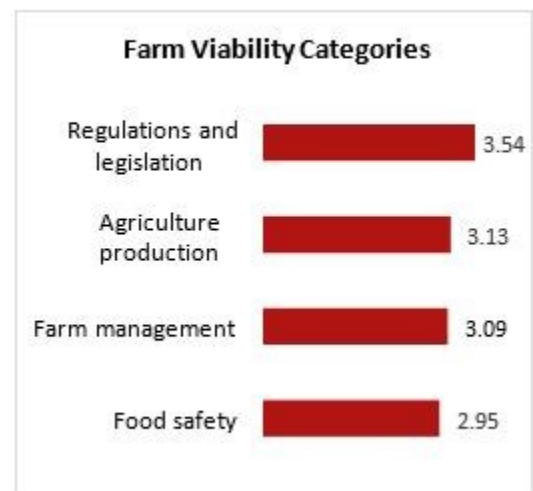
Viability of the Agriculture Industry

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

For the Eastern Shore Needs Assessment to gain the desired information, it was important to rank industry issues related to agriculture viability in various topic areas. Farm viability seeks to provide “capacity to operate” and a “reasonable chance of success” (Pennings, Irwin, & Good, 2002). University of Maryland Extension’s goal is to provide farmers and landowners with the knowledge and resources to be viable both short and long term.

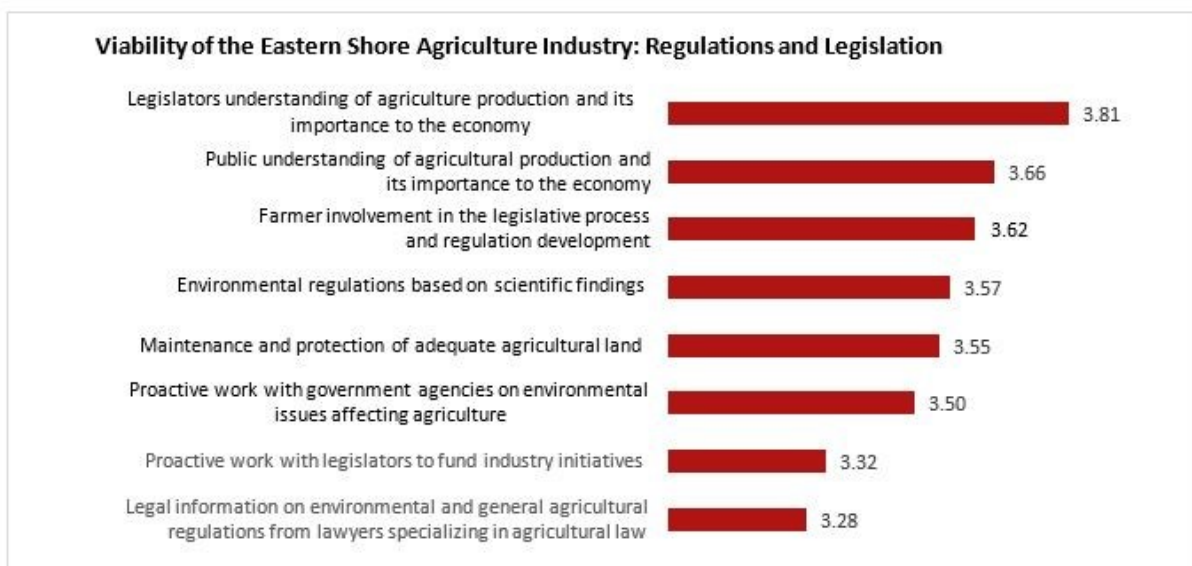
The categories of questions that received the highest mean scores were regulations and legislation, agriculture production and farm management.

Figure 4. Farm viability category ranking



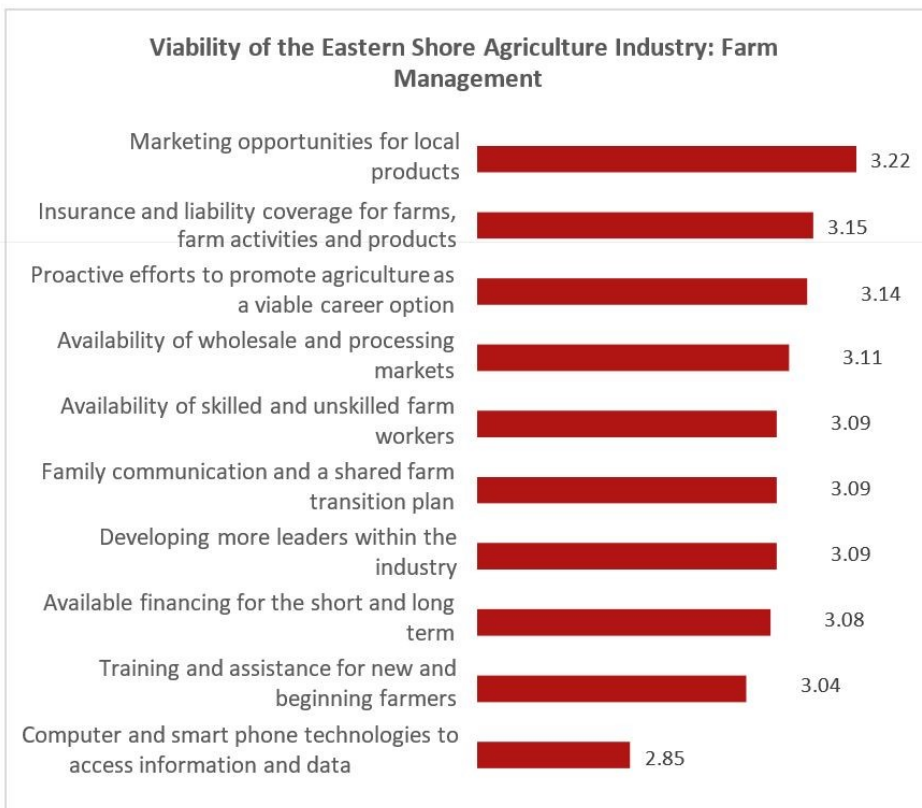
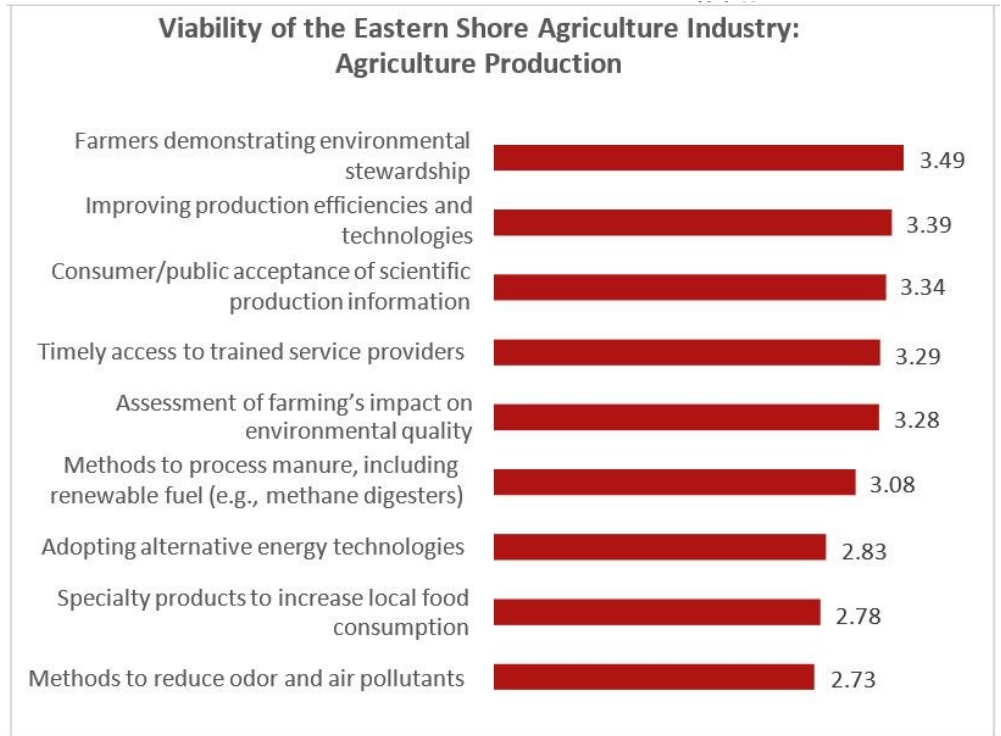
Regulations and Legislation

In the area of regulations and legislation, the top three responses include the importance of: 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) Farmer involvement in the legislative process and regulation development.



Agriculture Production

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

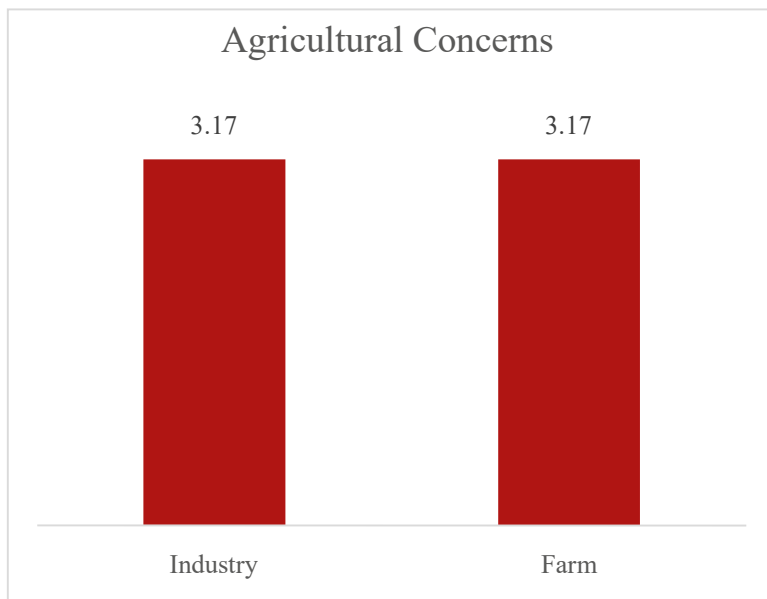
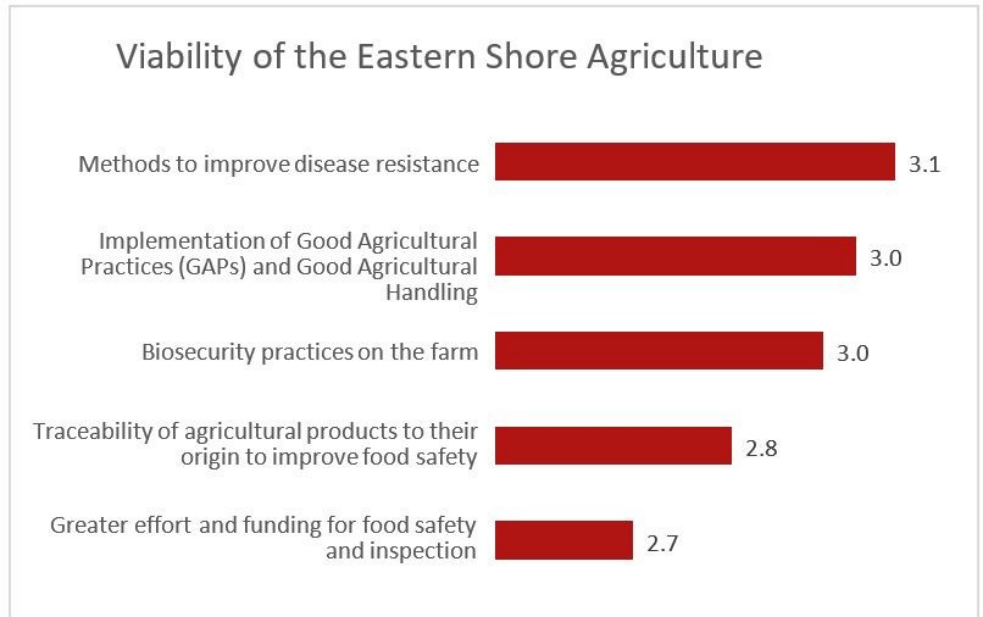


Farm Management

In the area of farm management, the top three responses include the importance of: 1) Marketing opportunities for local products; 2) Proactive efforts to promote agriculture as a viable career option; and 3) Insurance and liability coverage for farms, farm activities and products.

Food Safety

In the area of food safety, the top three responses include the importance of: 1) Consumer/public acceptance of scientific production information; 2) Implementation of Good Agricultural Practices (GAPs) and Good Agricultural Handling; and 3) Biosecurity practices on the farm.



Agriculture Concerns

Farmers were then asked about their level of concern about their farm and the agriculture industry.

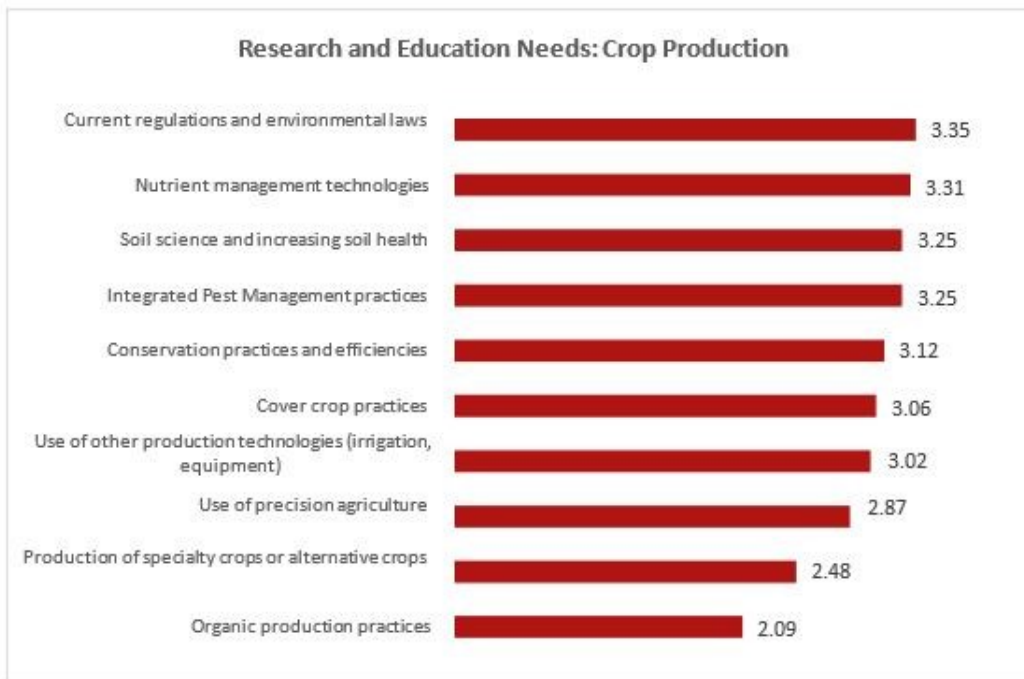
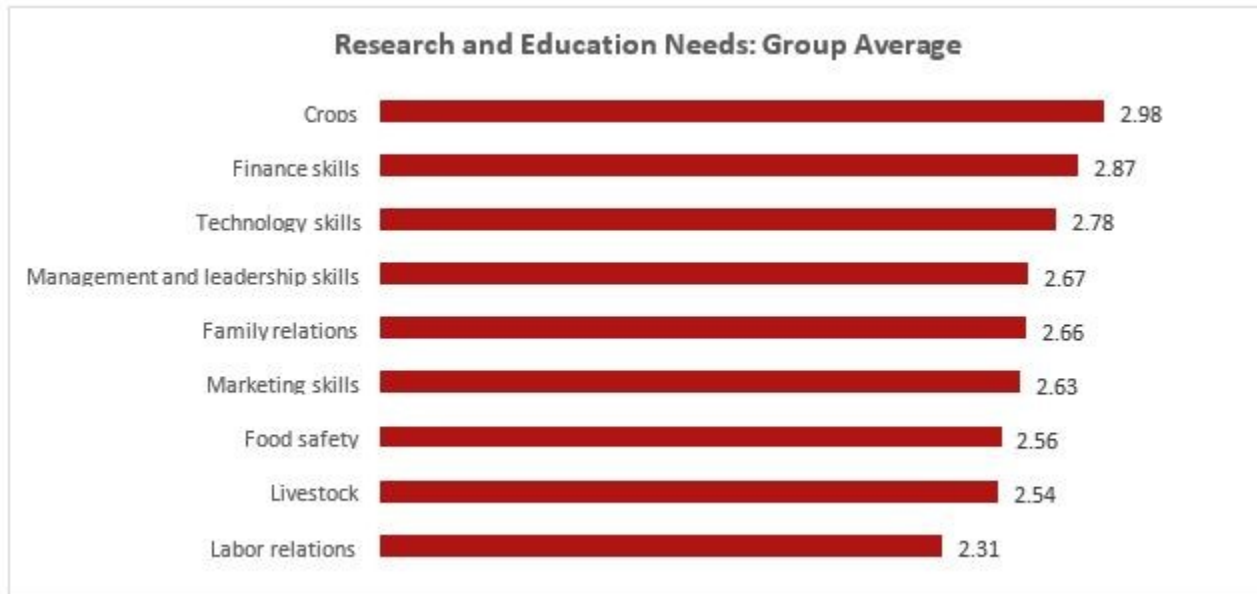
The top three concerns for farms were: 1) Farm transfer to the next generation; 2) Loss of farm land due to urban encroachment; and 3) Consumer understanding of product labels, (hormone/antibiotic-free, organic, GMO).

Interestingly, the level of concern when averaged is the same for the farm categories as it is for industry categories.

Research and Education Needs

Farmers asked to indicate how much knowledge and training they desired in a variety of topics

This portion of the survey is where UME will focus efforts to provide education and outreach in desired areas. The survey was divided into nine groups with each group having multiple associated questions. Each group had the means averaged to determine the greatest interest in knowledge and training. The highest average means were topics in crops, finance skills and technology skills closely followed by management and leadership skills, family relations and marketing skills.

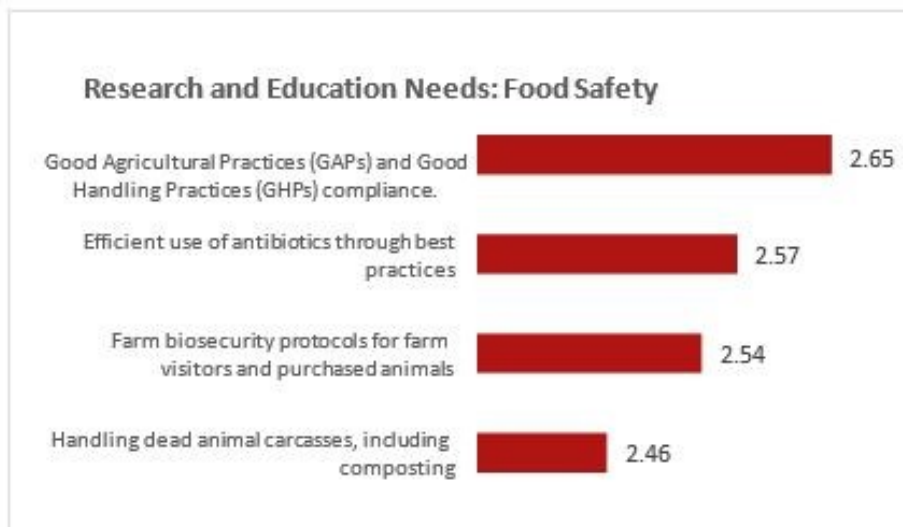
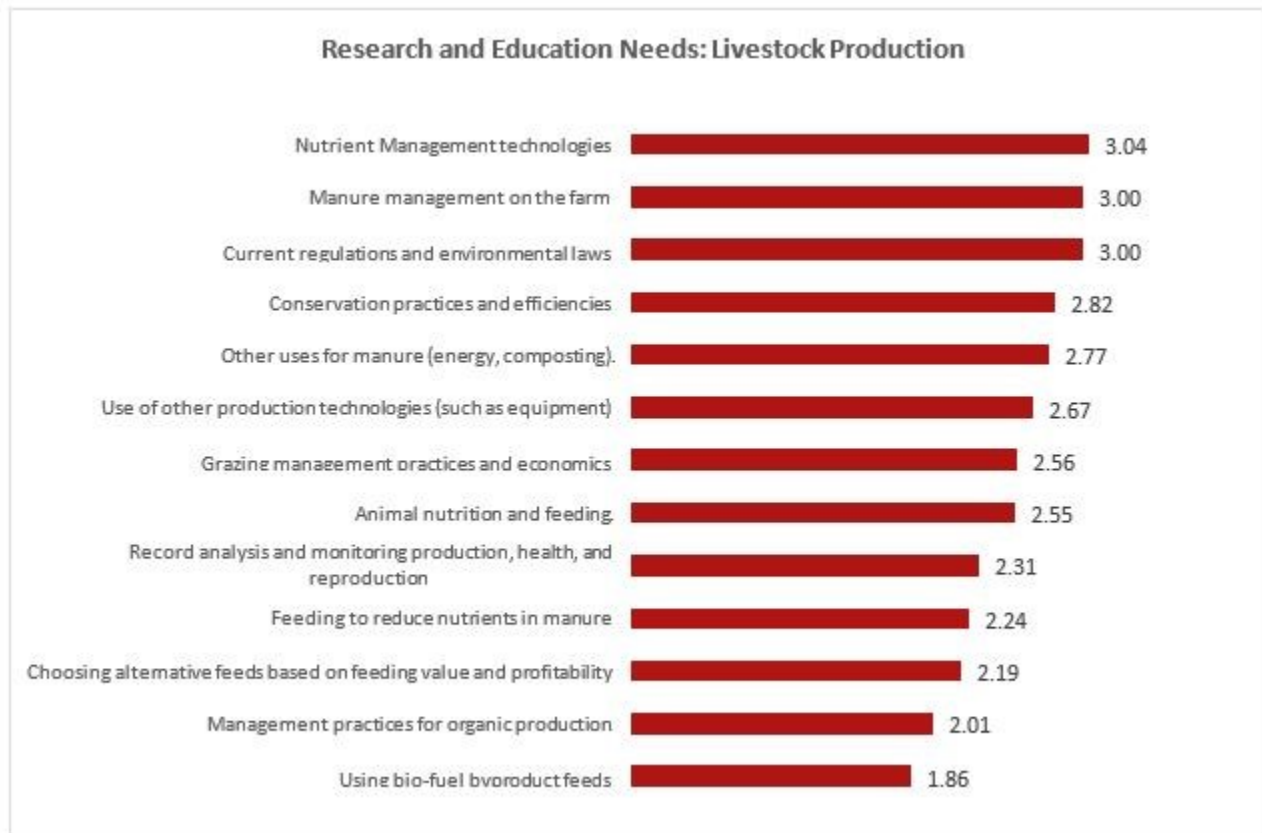


Agriculture Concerns

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

Interestingly, the level of concern when averaged is the same for the farm categories as it is for industry categories.

In the area of production management for livestock, the top three topics were: 1) Nutrient management technologies; 2) Current regulations and environmental laws; 2) Manure management on the farm (received the same response); 3) Conservation practices and efficiencies.



In the area of food safety, the top three topics were: 1) Good Agricultural Practices (GAPs) and Good Handling Practices (GHPs) compliance; 2) Efficient use of antibiotics through best practices; and 3) Farm biosecurity protocols for farm visitors and purchased animals.

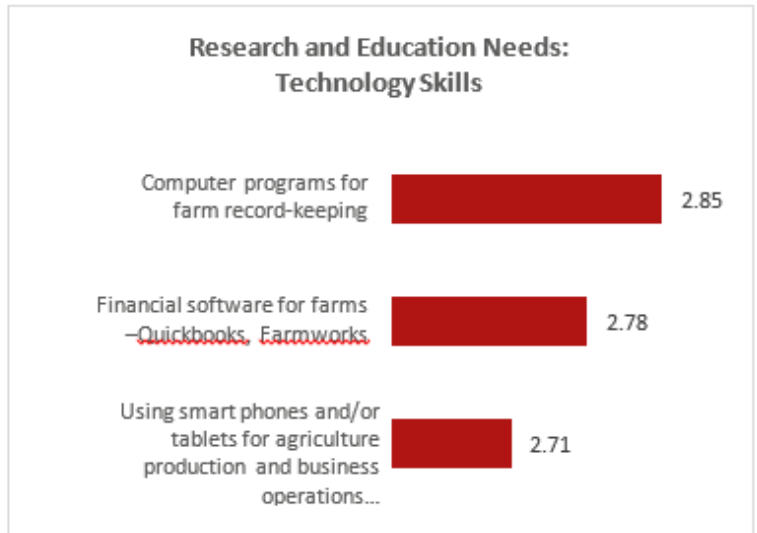
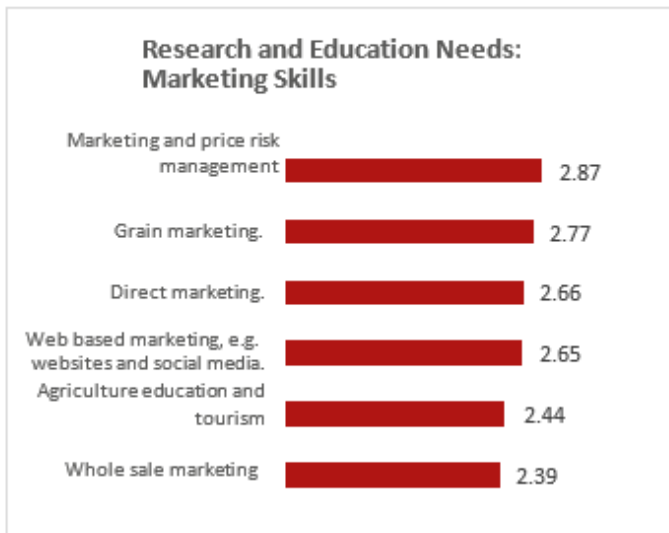
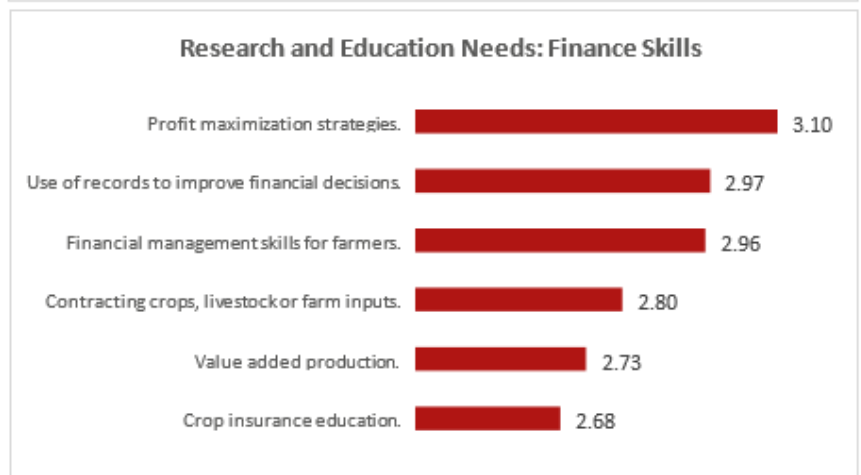
Farm Management

In the area of management and leadership skills, the top three topics were: 1) General farm business management; 2) Retirement planning and farm transition; and 3) Understanding the legal system and dealing with lawsuits.

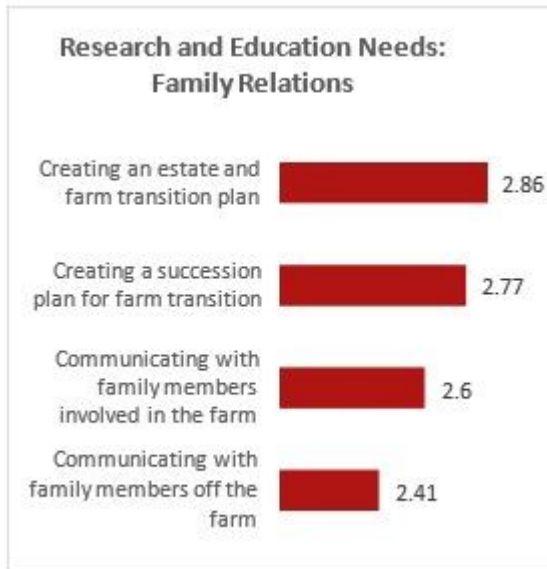
In the area of finance skills, the top three topics were: 1) Profit maximization strategies; 2) Use of records to improve financial decisions; and 3) Financial management skills for farmers.

In the area of marketing skills, the top three topics were: 1) Marketing and price risk management; 2) Grain marketing; and 3) Direct marketing.

In the area of technology skills, the top three topics were: 1) Computer programs for farm record-keeping; 2) Financial software for farms – QuickBooks, Farmworks; and 3) Using smart phones and/or tablets for agriculture production and business operations.

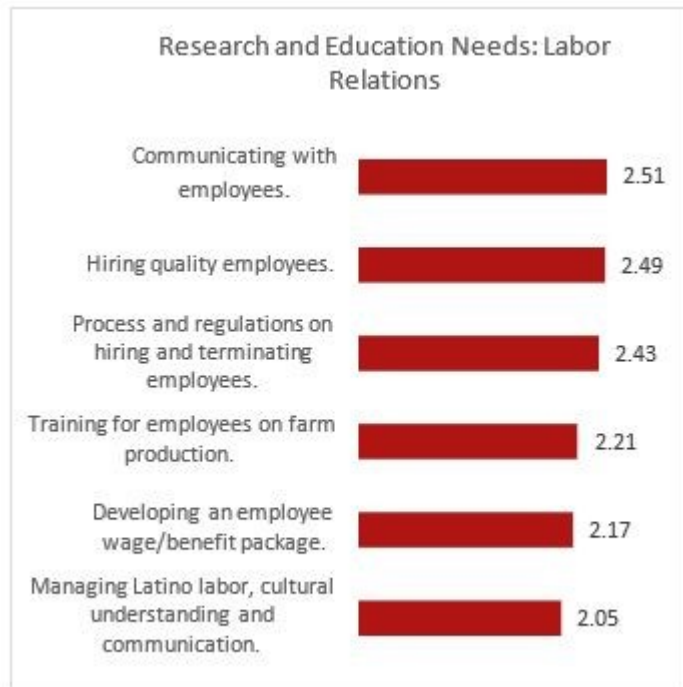


Human Resource Management



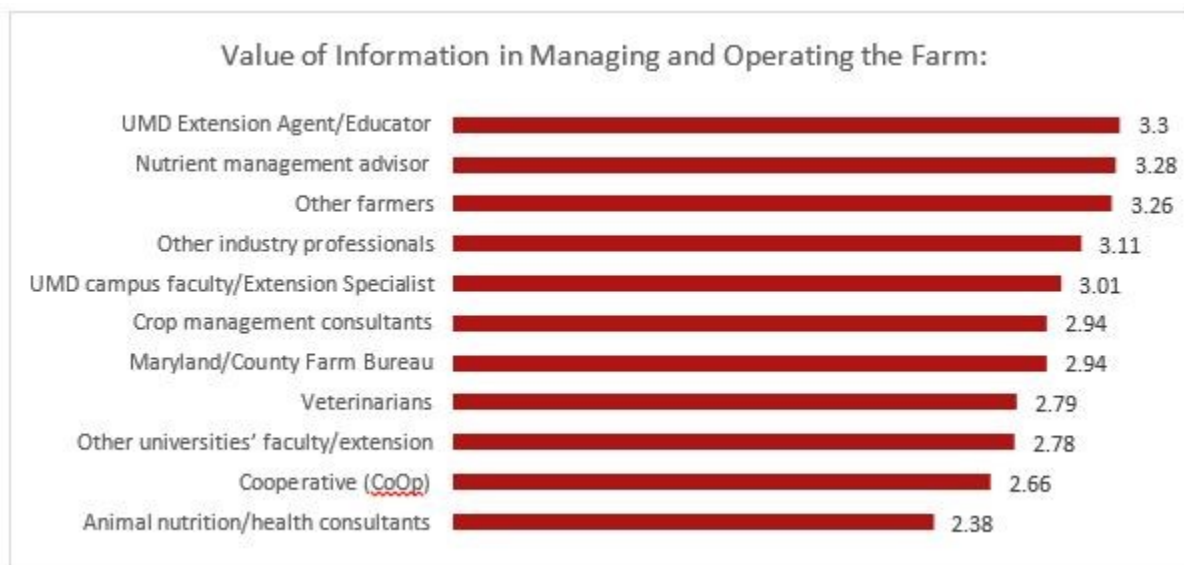
In the area of family relations, the top three topics were creating an estate and farm transition plan; 2) Creating a succession plan for farm transition; and 3) Communicating with family members involved in the farm.

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



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 (87%), conservation plans (79%) and marketing plans (52%). Farms value multiple information sources in order to manage and operate their farms. Highest ranking was UMD Extension Agent/Educator followed by nutrient management advisor, other farms and industry professionals.

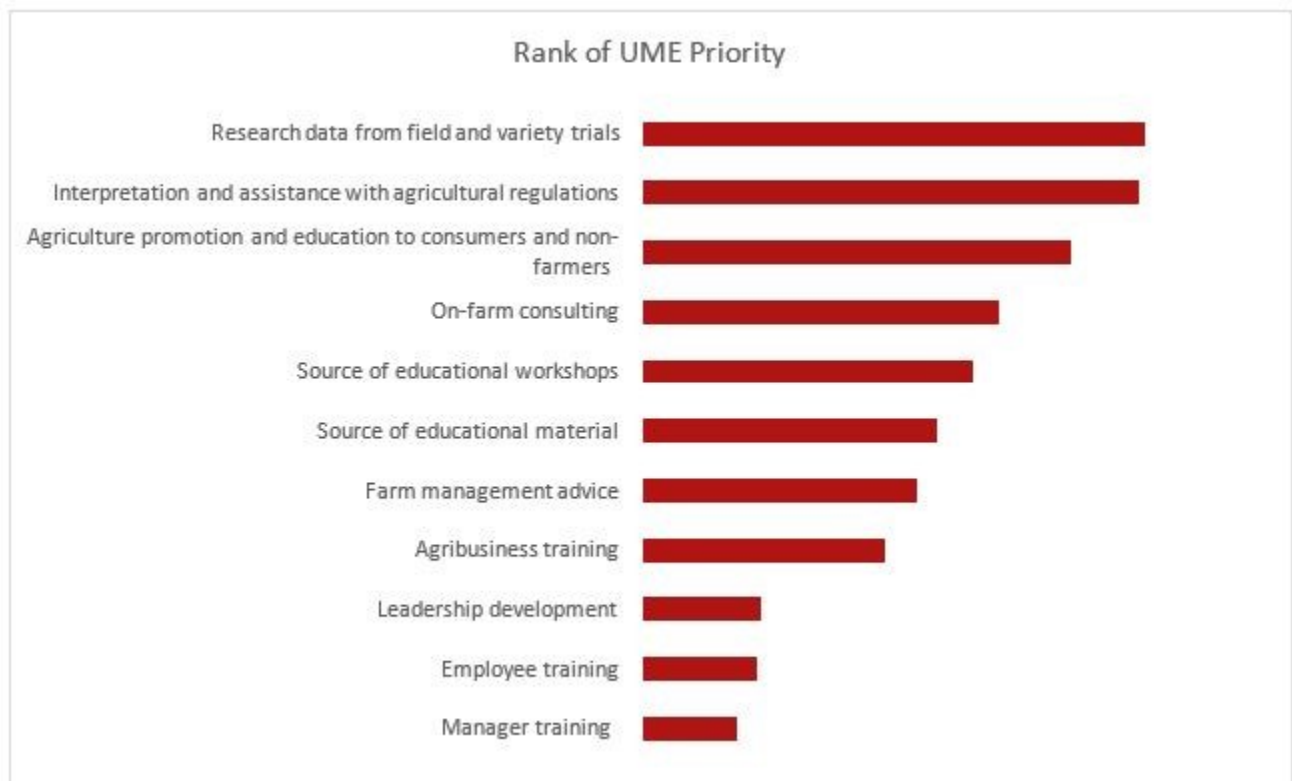


It was also important to discover how farmers would like to receive Extension education and training. This is meaningful when planning program outreach and delivery. The highest responses were extension newsletters, half-day seminars or workshops and hands on training.



Education Priorities

The top three priorities for services that UME would provide farms and the agriculture industry in the next 10 years includes the following topics. The top three were research data from field and variety trials, interpretation and assistance with agricultural regulations and agriculture promotion and education to consumers and non-farmers. Following these top priorities were on-farm consulting, sources of educational workshops and sources of educational material.



Comments and Quotes

At the end of 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 farmers. The majority of written responses were about marketing, production and education. Examples include:

- ◇ “Local vegetable and meat markets are increasing. Build slowly and protect your business and income through crop insurance.”
- ◇ “Farming can be the most gratifying occupation.”
- ◇ “Find an established farmer to work with and contact UME for beginning farmer programs.”

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, financial issues, markets and production. Examples include:

- ◇ “The weather and government regulation are the biggest challenges.”
- ◇ “Regulations and general public misunderstanding”
- ◇ “Farming will be very competitive. It will be difficult to access the capital to start a standard grain operation but there will be opportunities.”

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 education and research, new information and programming assistance with regulatory issues. Examples include:

- ◇ “Up-to-date training regarding the changes to the laws and regulations.”
- ◇ “To better inform the public on where food comes from and how hard it is and to appreciate the work that goes into the food they consume.”
- ◇ “Be visible and knowledgeable of current trends in local production.”

Conclusions

In conclusion, the needs assessment survey reached a suitable number of farmers in the nine Eastern Shore 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, nutrient management, working with the public and education about agriculture production.

Responses indicate that the Eastern Shore 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 continued 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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This publication, *Eastern Shore Agriculture Needs Assessment (EB-436)*, is a series of publications of the University of Maryland Extension and the Department of Agriculture.

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

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