Most livestock farmers are aware of the growing interests shown by stakeholders such as regulators, food processors, consumers, neighbors and environmental activists in their operations, and many are themselves making environmental stewardship a high priority in the management of their operations. Results from a recent survey of dairy farmers in Michigan by the Michigan State University Extension Dairy Team (1) suggest that Michigan dairy producers are proactive about their environmental stewardship and are interested in demonstrating this stewardship to government entities and others. The results also indicate a willingness of producers to seek information on improved environmental stewardship practices as well as on current environmental regulations. One avenue to achieve these priorities is through participation in the Michigan Agriculture Environmental Assurance Program (MAEAP).

This article presents the results of a survey of Michigan livestock producers who participate in MAEAP. The article shows that MAEAP-verified dairy producers identified tangible benefits to their operations as a result of participating in MAEAP. Our findings offer insights for the realization of the dairy industry’s priorities as they relate to environmental stewardship and regulation and provide evidence that suggests that these priorities are achievable when producers are MAEAP-verified.

MAEAP

MAEAP is a voluntary program that affords farmers the opportunity to be proactive about their environmental stewardship. It provides education and on-farm risk assessment in order to equip the farmer to implement an approved management plan to address identified risks. MAEAP covers livestock, farmstead, and cropping systems and most producers participating in MAEAP strive to become MAEAP-verified. For livestock systems, MAEAP verification is attained after an independent farm inspection to confirm that the producer is following and implementing their individually approved Comprehensive Nutrient Management Plan or CNMP (2). Currently there are 209 MAEAP-verified livestock producers.
Of these, 112 also hold a Michigan Department of Environmental Quality (MDEQ)/National Pollutant Discharge Elimination System (NPDES) permit because they are Concentrated Animal Feeding Operations (CAFOs).

Results of MAEAP Survey

As part of an ongoing research study at Michigan State University (MSU), a pilot survey of MAEAP-verified live-stock (dairy, beef, hogs, poultry/turkeys, sheep/goats, and horses) producers was carried out in the summer of 2008. This survey sought to gather information on producers’ motivation for participating in MAEAP and the benefits they derive from participation. The findings of this survey offer insights into the attainment of the dairy industry priorities as they relate to environmental stewardship and regulation. These findings are summarized in this article.

Survey questionnaires were mailed to 197 MAEAP-verified livestock producers and 49% returned completed surveys. A total of 95 surveys were usable in the data analysis.

Twenty-two percent of the respondents (21 farmers) had dairy operations. These 21 dairy operations ranged in size from 40 to 5000 dairy cows with 43% of them having an inventory of 500 or more dairy cows. Only 28% of dairy producers in the sample indicated that they currently operate under a MDEQ/NPDES permit for CAFOs compared to 52% of non-dairy livestock producers who so indicated.

Respondents were asked to rate different factors in terms of how important they are in their decision to participate in MAEAP. Factors listed on the survey, relating particularly to environmental stewardship or regulation, included the following:

- ensuring that my farm attains environmental standards for future generations
- desire to farm in an environmentally-friendly manner
- conforming to current regulatory standards so farm can remain in agriculture for the future
- prefer to be involved in a voluntary program now rather than wait for potential future regulations
- neighborhood concerns or pressure

The percentages of dairy producers and other livestock producers who rated each of these factors as being important or very important in their decision to participate in MAEAP were compared. In all cases, the proportion of dairy producers who were motivated by each of these factors was not statistically significant from that of other livestock producers. All surveyed dairy operators felt that it is important or very important for them to participate in MAEAP in order to ensure that their farm attains environmental standards for future generations. Similarly, all surveyed dairy operators felt that it is important or very important for them to participate in MAEAP because of their desire to farm in an environmentally-friendly manner. Respondents also attached a high level of importance to MAEAP participation in helping them to conform to environmental regulations for the future success of their farm operation.

The need to communicate effectively with the legislature and government agencies featured prominently among the top priorities of Michigan dairy producers on an earlier survey (1). In a similar manner, opinions of MAEAP-verified livestock producers were sought on the current survey, as to the effectiveness of MAEAP participation in communicating that livestock producers are responsible stewards of the environment to different stakeholders including the state legislature, Michigan Department of Agriculture (MDA), MDEQ, food processors, environmental activists and farmers’ neighbors. Again, the percentages of dairy operators and other livestock operators who agreed or strongly agreed that “MAEAP participation is effective in communicating that livestock producers are responsible stewards of the environment” were compared. In general, high proportions of dairy producers and other livestock producers, respectively, who were surveyed, agreed or strongly agreed that MAEAP participation is effective in conveying to the MDA (89% vs. 95%) and the state legislature (78% vs. 79%) that they are responsible stewards of the environment, although there is a wide gap between the proportion of dairy producers (67%) and other livestock producers (78%) who thought that MAEAP is effective in communicating their environmental stewardship to their neighbors. On the other hand, greater
proportions of dairy producers than other livestock producers thought that MAEAP participation is effective in conveying their environmental stewardship to MDEQ (61% vs. 41%) and environmental activists (37% vs. 28%). Just about half of dairy and other livestock producers thought that MAEAP is effective in conveying to food processors that they are responsible stewards of the environment.

Several statements on potential benefits of MAEAP were listed on the survey instrument and respondents were asked to indicate their level of agreement with these statements. A sample of these statements, relating to either short-term or long-term benefit of MAEAP, is as follows:

**Short-term Benefits**
- MAEAP reduces my liability if there is an environmental accident on my farm.
- The benefits of MAEAP participation exceed the costs for my farm.
- MAEAP participation will allow me to be responsive to changes in the market for livestock products dictated by environmental concerns.
- MAEAP participation is helping me to differentiate or brand my products in the marketplace.

**Long-term Benefits**
- Due to my participation in MAEAP, I have made changes to my livestock operation that protect the environment.
- Due to my involvement in MAEAP, I can better manage my farm for environmental and regulatory matters.
- By being a MAEAP participant, I will be more prepared for any future regulatory changes.
- The existence of MAEAP may help preempt future regulation of livestock producers.

Figure 1 shows the results for surveyed dairy producers and other livestock producers for the four statements pertaining to short-term benefits. The difference in the percentages of respondents between the two groups who agreed or strongly agreed with each of the statements was not statistically significant. There was low agreement among producers on the statement about MAEAP participation helping producers to differentiate or brand their products in the marketplace; on the other hand, more than 50% of dairy and other livestock producers surveyed were in agreement that MAEAP reduces their liability if there is an environmental accident on their farm, that the benefits of MAEAP participation exceed the costs for their farm, and that MAEAP participation will allow them to be responsive to changes in the market for livestock products dictated by environmental concerns.

Figure 2 shows a clearer and statistically significant distinction between dairy producers and other livestock producers on their perception of the long-term benefits of MAEAP. All dairy producers agreed or strongly agreed that, due to their participation in MAEAP, they have made changes to their operations that protect the environment compared with 82% of other livestock producers who did. Similarly, all dairy producers agreed or strongly agreed that due to their involvement in MAEAP, they can better manage their farm for environmental and regulatory matters compared to 79% of other livestock producers who so indicated. A higher percentage of dairy producers (79%) compared to other livestock producers (53%) agreed or strongly agreed that the existence of MAEAP may help preempt future regulation of livestock producers. Only on the issue of farmers being more prepared for any future regulatory changes did similar proportions of dairy (90%) and other livestock (86%) producers agree or strongly agree that MAEAP participation will enable them to be prepared.

**Conclusions**

Results of the MAEAP pilot survey indicate that all surveyed MAEAP-verified dairy producers were motivated by the need to ensure that their farm attains environmental standards for future generations and by the desire to farm in an environmentally-friendly manner. In addition, high proportions of surveyed MAEAP-verified dairy producers agree that MAEAP participation is effective in communicating that they are responsible stewards of the environment to the Michigan Department of Agriculture and the Michigan Department of Environmental Quality as well as the Michigan state legis-
These desires for environmental stewardship and farm viability as well as a realization of active interaction with government agencies match the priorities identified in the 2008 Michigan dairy industry survey (1). Our results also provide evidence that MAEAP-verified dairy producers perceive benefits that are long-term in nature. Such long-term benefits include producers making changes in their dairy operation that protect the environment and acquiring improved management skills resulting in better environmental management of their farms. Therefore, participating in MAEAP provides potential for dairy producers to achieve their industry priorities relating to environmental stewardship.

Acknowledgements
The MAEAP pilot survey was funded by the Elton R. Smith Endowment in the MSU Department of Agricultural, Food and Resource Economics. We wish to thank livestock producers who participated in the survey, Jan Wilford, Natalie Rector, Dale Rozeboom, Wendy Powers and Gary Trimner.

References