Sustaining Animal Science and Extension Programs

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Extension and animal science programs have encountered cyclic funding challenges over the last 10 to 20 years. Severe budget cuts tend to coincide with hard economic downturns. Extension's budget complexity and reliance on federal, state, and local resources, and in some cases a line item in a state budget, make it especially vulnerable. Animal science departments sport a large infrastructure to support academic, research and extension programming. Both extension and animal science departments make attractive targets as they are perceived to be "resource rich". Michigan State Cooperative Extension (MSUE) and the MSU Department of Animal Science are no exception to rule. In an environment where few dollars are allocated, and expectations large, sustaining complex programs requiring considerable talent and infrastructure is a challenge. "Doing more with less" eventually dampens organizational spirit and program momentum. At the same time such challenges may present opportunity to restructure, update and discover new avenues for program delivery that in the long term enhances program sustainability.

In anticipation of a predicted 20% budget reduction in 2009, MSUE proactively initiated the redevelopment of its traditional extension model. An internal taskforce was convened to explore restructuring. As this process was unfolding, the seated Governor proposed a 48% reduction in the state allocation to the MSUE. A more devastating cut then predicted. The proposed cut was used as political leverage to call attention to items dismissed by a more conservative legislature. The Governor also requested specific improvements in MSUE accountability by demonstrating its beneficial impact to the state. Political bargaining reduced the budget cut and produced a "dashboard" of priority areas for demonstrated impact that set the tone for restructuring the MSUE. With the "dashboard" in place a new extension delivery model evolved that included the following elements: extension becomes more specialized and will cover larger geographic focus areas; work groups would be used to develop state-wide plans for coverage and program delivery; 4-H would remain physically located in each county; a new relationship would be developed with local partners regarding office space, staff, controlling costs and the implementation of an assessment as the means for requesting local support. This would all happen under the mantle of a newly created institute model.

The institute model incorporated the four initiatives identified by the Governor's dashboard: economic prosperity, job creation, and human and ecosystem health. Thus the Agriculture and Agri-Business Institute, Children and Youth Institute, Health and Nutrition Institute, Greening Michigan Institute were born. Through the use of metrics, measurable impacts were to be demonstrated by each Institute. As the restructure was taking shape the MSUE and MSU AgBioResearch (experiment station) took a 15% budget cut in 2011. For extension 72 extension educators were either laid off or took retirement. The cuts also eliminated dairy and livestock youth faculty positions from the Department of Animal Science. The combined cuts manifested a ~1.14m cut to the Department of Animal Science inducing layoffs of staff and a reduction in livestock. As a consequence the budget reduction energized and mobilized the institute model. As envisioned in 2009, specialization of educators and covering larger geographic focus regions became reality. Extension educators were assigned to cover geographical areas as opposed to counties and function more like regional specialists delivering expertise in assigned areas of expertise and curriculum to clients. Campus extension faculty and specialists provide the scientific expertise, curriculum and training; and co-develop programming with the educators. Extension educators, specialists and faculty work together to build logic models that define deliverables and outcomes, develop metrics, collect data, and report impacts. Since its implementation the institute model has rendered important information on the impacts of its programming for the purpose of being accountable for the state's investment in the MSUE.

To date the institute model has generated enough evidence for proof of concept, however some educators and

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faculty have had difficulty negotiating the new structure while others have thrived on the cross-cutting approach. Educators and campus faculty experiencing difficulty report feeling stretched to deliver programming beyond their knowledge base (educators), believe the system is top heavy and dictated largely by the need to generate demonstrative outcomes. Some complain about large transaction time manifested by heavy email traffic and the perception of being meeting intensive. Some educators feel estranged from campus faculty. Campus specialists and faculty felt as if they were blamed for educator layoffs during the budget cuts and estranged from educators. They also observed disconnect between Department Chairs and the Institute Directors expectations. Recent changes in leadership will likely modify the model. The positive sustainable attributes of the model appear to outweigh the negative and with some modification educators and faculty should become more comfortable with the structure.

Similar to extension, departments of animal science (generic reference to combined and separate animal, dairy and poultry science departments) face significant challenges ahead. Based on an unpublished 2011 survey of 32 departments administered via the animal science department chair/head list serve, 31 departments report the following trends: reductions in faculty especially tenure track, increased hiring of fixed term faculty and specialists, reductions in herds and species coverage, reduction in graduate student funding and population (increasing numbers of international students with own funding), increased pressure on faculty to self-fund salary, students, technicians and pay per diems for animal use; decreased competitive funding of animal science research, and the number of undergraduate students is steadily increasing. At the writing of this proceedings paper another animal science department survey is underway.

With the majority of trends pointing to reductions in force, resources and funding, and projections of future increases in consumption of dairy, meat and egg products, many animal science departments are wondering how we generate the science to meet the needs of an expanding world population. How will we be able to recruit and train the scientists of the future? And who will fund animal science research over the next decade? State support of public universities has continued to trend downward with a few universities receiving less than 10% state support. Federal support for animal science research is not what it should be. Although animal and plant agriculture contribute comparable value to our national economy they are not valued equally as national research priorities. In the US animals, and the food they eat, represent 60% of all agricultural sales receipts (USDA-ERS http://www.ars.usda.gov/data/farmincome/finfidmu.htm) yet only receives a 29% of what is federally allocated for plant and animal research. This is exacerbated by the stagnation of funding for all agricultural research. Brazil (3b) and China (45b) are making significant R&D investment in agriculture and food production compared to our 1.6 billion. Chronic underfunding jeopardizes the future of the animal sciences including allied disciplines in veterinary science and medicine. Public university administrators may perceive the lack of federal investment in animal science research as a strong signal to devalue the animal sciences or eliminate it altogether. Lack of funding creates an inability to answer highly complex questions including sustainability of animal based food systems. Unfortunately animal science stakeholders have been ineffective in securing research funding unlike stakeholders of the plant sciences who have an effective unified voice of support for plant science research in Washington D.C. Where is the advocacy for agricultural animal research funding?

The National Association for the Advancement of Animal Science (NAAAS) is a 501(c) 6 organization founded by heads/chairs of departments of animal, dairy and poultry science and modeled after a similar organization that advocates for plant science. The organization was initially comprised of department heads/chairs from 12 animal and poultry science departments and currently has 20 department members including animal/poultry/dairy and large animal veterinary medicine departments. NAAAS (http://animalsciences.us) was formed to advocate for an increase in federal funding of agriculture R&D, to serve as a voice for animal science research, work closely with stakeholder and scientific organizations, and to work with Congress and the Administration to promote the importance of animal agriculture research funding. Animal, dairy, poultry science and veterinary medicine departments are invited to membership. Industry, commodity, scientific and other organizations may join as associate members. Currently NAAAS has nine associate members. Accomplishments of NAAAS during 2013 – 2014 include the authorization of ~25m competitive funding in Section 1433 of the new Farm Bill. NAAAS lobbyists and members worked with the House and Senate committees of agriculture, USDA, industry and the Association of Public and Land Grant Universities to secure the authorization. Over 90 state and national organizations supported the authorization. NAAAS is currently working toward securing appropriations and has the support of 92 state and national associations.

In addition to the Farm Bill, NAAAS has been engaged with the National Academy of Science (NAS) Study on Animal Science Research by assisting with securing funding for the study, submitting nominees for the study group and setting direction for the work. NAAAS also submitted nominations to the USDA and the National Academy of Science for the Board of Directors of the new Foundation for Food and Agriculture Research and submitted comments to USDA on the REE action plan. Future plans include advocating to increase funding to USDA-NIFA.

In conclusion, extension must continue to morph as will animal science departments to remain sustainable. Traditional outreach mechanisms as depicted in the Rockwell painting County Agent are not coming back. Service fee approaches appear inevitable in the shorter term un

less funding sources increase to subsidize programming. Other approaches have been proposed such as using a "block" grant model to buy faculty time or hiring fixed term professionals to focus on defined issues. Animal science departments have been diversifying their portfolio of faculty talent and research focus to take advantage of other funding streams such a NIH and NSF. Discoveries in animal science are applicable to other walks of science making us more recognizable and broadening our base of support. Some animal science departments, including MSU, have developed relationships with campus food service and supply beef, pork, eggs and chicken from their campus farms and utilize their meats laboratories to supply processing. The current infatuation with local food and regional food systems open the door for campus livestock and poultry farms to cultivate another revenue stream. Finally we must aggressively push the envelope on increasing funding to the animal sciences which is foundational to sustaining our research, teaching and extension missions.

Acknowledgements: Thank you to Dr. Russell Cross, Head, Department of Animal Science, Texas A&M University and President of NAAAS; and to Lowell Randel of The Randel Group, LLC, Washington, D.C. for their contributions to this paper.