

# **Mark W. Mayer**

Department of Agriculture and Life Sciences

Tenured Faculty Review

April 14, 2015

Position: Green County UW-Extension Agriculture Agent  
1985 to Present

Rank: Professor - Granted July 2010

# 1. Program Development/Implementation and Teaching Impacts

## A. Dairy Modernization and Management

### Situation:

The transition from the stall barn housing and milking systems to free stall and parlor milking systems continues to occur on Wisconsin farms. Many family dairy farms need to expand their herd size to provide sufficient cash flow to enable them to stay competitive and allow for the opportunity for the next generation to join the family farm business. Research has shown that cow comfort is a critical factor in attaining high milk production. Previous surveys conducted by UW-Extension have shown that dairy farms can double the amount of cows milked per person with the same amount of labor by modernizing their milking facilities. By moving cows out of old poorly ventilated stall barns that lack adequate stall size production can be increased and labor reduced by 25 hours per cow per year.

### Response:

In response to the need for assistance in modernization systems on dairy farms in Southern WI several workshops and tours were set up and taught by this agent. These educational workshops and tours were designed for both dairy producers and agriculture professionals to help gain acceptance of modernization practices. The tours featured a wide variety of dairy herd sizes that had modernized along with examples of both remodeled and new facilities. A variety of different parlors, manure handling, ventilation, cattle housing, and feed handling systems were included on the tours. **(Exhibit 1)** A list of the major dairy workshops and tours this agent organized and/or taught at are listed below.

- 97 Individual Farm Dairy Farmstead Consultations - 2010-Present
- UW Short Course Farm Building Class "Working with your County Agent" - 2010-Present
- Annual Green County Dairy Management Seminars - 2010-Present
- Dairy Margin Protection Program Informational Meeting - 2014
- Dairy and Livestock Facilities Presentation to Blackhawk Technical College - 2012 and 2014
- Southern Wisconsin UW-Extension Dairy Modernization Facility Tours - 2011 and 2013
- Presentation on Cost of Raising Replacements at N.W. IL Dairy Seminar - 2013
- Midwest Animal Husbandry Conference – 2012 **(Exhibit 2)**
- Regional Barn Meeting for WI Holstein Association Presentation on "Freestall Housing for Registered Holsteins" - 2012
- Dairy Cattle Handling Workshop for Hispanic Workers - 2012
- Livestock Gross Margin Informational Meeting - 2012
- Testified to WI Assembly Rural Affairs Committee on Dairy Trends in WI - 2011
- Presentation on Cow Comfort at S.W. Technical College Fall Field Day - 2011
- Presentation to North Central Region Extension Agriculture Directors on UW-Extension's Programming and Impacts on Dairy Modernization - 2011

### Impacts:

Over 340 dairy producers and other Ag Professionals from 15 different counties and three states participated in one or both of the Dairy Modernization Tours that were organized by this agent in 2011 and 2013. Many of the dairy farms that hosted the tours were assisted by this agent in their modernization efforts. Farmers like the open house format of these tours that allows them to choose which farms they wish to visit. They also like hearing from other farmers on their modernization experience. The majority of the learning was accomplished with one-on-one and small group discussions led by the host farmers and this agent. A post survey showed that 89% of the tour participants felt that the tours would help them to make better informed decisions about modernizing their dairies. **(Exhibit 1)**

As a result of these tours, individual consultations, presentations and workshop this agent has provided technical information on dairy modernizations options to over 1,000 Wisconsin dairy farms over the past five year period. Forty-seven farms in Green County and the surrounding area have modernized their milking and/or dairy housing systems through assistance and information provided by this agent from 2010-2014.

Improvements and advantages reported by the producers that were assisted by this agent in modernizing their facilities included: improved cow comfort, lower vet bills; provided an alternative use for empty dairy barns, provided expansion to allow for the farm to continue and be passed onto the next generation, allowed for phasing in milking facility upgrades over time, reducing stress and interest costs; milking in a parlor created a safer and more comfortable environment for the milker; and the number of cows milked/person per hour as compared to conventional stall barns was doubled on most farms.

**Other Impacts:**

- 101 dairy and livestock farmers, veterinarians and other Ag professionals attended the Midwest Animal Husbandry Conference that was Co-Chaired by this agent. 93% of the participants stated in a post meeting survey that they were motivated to make changes in their farming practices or animal husbandry protocols as a result of attending the meeting. Using a score of 1-5 participants increased their level of knowledge on Housing to Optimize Cow Well Being from 2.82 prior to the meeting to 4.31 after the meeting, and increased their level of knowledge from 2.59 to 4.88 on Pain Management for Livestock. **(Exhibit 2)**
- 83 dairy producers increased their level of understanding in the new federal Dairy Margin Protection Program through a seminar conducted by this agent.
- 267 farmers, custom operators and elected officials gained a better understanding of the new Implements of Husbandry regulations and how to apply and fill out permits for farm machinery on roads through a series of 3 meetings planned by this agent from 2013-15.
- 57 farmers attended a Farm Transfer Seminar conducted and taught by this agent. 100% of the participants stated that they would use the information received at the seminar in future planning. Twenty-nine percent of the participants indicated on a post meeting survey they would start a farm succession plan with their families as a result of the seminar, 24% indicated that they would develop a farm business arrangement or modify their existing arrangement after attending the seminar.

**B. Agriculture and the Environment**

**Situation:**

Disposal of old chemicals and other hazardous materials that have accumulated on farmsteads had become an ever increasing problem in Green County. Due to the high cost of proper disposal of these hazardous materials the majority of the citizens continued to store these old products. Storing these hazardous materials in homes and farm buildings creates a potential for both personal injury and contamination of surface or ground water.

The use of plastic silo bags, bale wraps and bunker covers for storing forages has skyrocketed in the county over the past five years. The increased use of these plastics has resulted in a large disposal issue. A local Ag plastic wholesaler estimates that he now sells 3 million pounds of plastic annually in Green County. Legal disposal of the used plastic is limited to landfilling. However, because of landfill tipping fees the majority of dairy farmers are burning their used plastic. Burning the used plastic is illegal and releases hazardous gases into the environment.

**Response:**

To address the hazardous waste disposal issue this agent brought together several Green County Departments to establish a permanent Clean Sweep Hazardous Collection site at the Green County Landfill Transfer Station in 2013. This agent secured county funding and state grants totaling \$34,000 to purchase a hazardous chemical storage shed and other items needed to set up a permanent site for a disposal program. The collection site is open from May through October and allows farmers and residents a free disposal option for hazardous materials. This agent has secured an additional \$10,200 in grant funds to continue the program in 2015.

To address the disposal problem for Ag plastics this agent worked with the Green County Solid Waste Board, Landfill Manager and Delta Plastics to establish an Ag Plastic Collection program in Green County in 2014. This agent worked on establishing an agreement for the county to collect and bale the plastic into large bales. Delta Plastic reimbursed the county for baling and collection and provided trucking of the plastic to their plant in Arkansas where it was recycled and used to make agriculture drainage tubes and trash can liners.

**Results:**

As a result of this agent's efforts 86 farmers and 289 households participated in the Hazardous Collection Programs in 2013-14 and were able to safely dispose of the 20,452 pounds of hazardous waste that no longer is a threat to personal injury or contaminating the surface and ground water in Green County. These chemicals included: Chlordane, Parathion, 2,4-D, Atrazine, Captan, Lead Paint, Silvex, DDT, Parathion, Strichnine, Pentachlorophenol, Acids, and Mercury. Past surveys have indicated that the majority of the participants (74%) would have continued to store the chemicals on their farms and in their homes if the collection had not been conducted. The other 26% said they either would have put the hazardous materials in the regular garbage or disposed of it improperly on their own land.

An Ag plastic collection program was conducted in November 2014 at the Green County Landfill in which Green County farmers were able to dispose of their used plastic silo bags, bale wraps and bunker coverers free of charge. The collection netted 64,000 pounds of plastic that was then baled and turned over to Delta Plastics to be recycled. The county landfill was reimbursed \$.0075 per pound for collecting and baling the plastic. A local FFA chapter distributed super sacks to farmers to be used to place the used pieces of plastic in for transport to the collection site. Due to the success of the program Green County is planning to do two additional collections in the spring and fall of 2015 and will also open the program up to farmers from the surrounding counties.

**C. Agriculture Literacy:****Situation:**

Each year more consumers become further removed from their agricultural roots with most now being 3 or more generations removed from production agriculture. Both print and social media contain a lot of misinformation about modern agriculture practices, especially in the dairy sector. This has led to many consumers questioning where and how their food is produced. Humans tend to fear what they do not understand and with the lack of understanding many question current agriculture practices including the way farm animals are treated. Ensuring that both consumers and elected officials have an accurate understanding of modern agriculture is increasingly important as farms get larger to produce the food that is needed for our growing world population.

**Response:**

This agent recruited three farms and 12 tour guides to conduct the Dairy Farm Educational Tours. The tours were held in conjunction with Green County Cheese Days in 2010, 2012 and 2014 that attracts over 100,000 people from the surrounding urban areas of Milwaukee, Chicago, Rockford and Madison. This agent conducted training seminars prior to the tours for both the farm hosts and

the tour guides. These trainings provided them with fact sheets about Green County Agriculture and our dairy industry. **(Exhibit 3)** Talking points included: animal care, nutrient management, land stewardship, milk quality standards, investment of labor and capital investment required to produce milk, how dairy animals are cared for, and how farmers care for the environment. This agent also developed a power point presentation on "Agriculture Trends: Food for Thought" and an Agriculture Literacy Quiz to use when talking to non-agriculture groups. **(Exhibit 3)**

**Outcomes:**

A total of 49 bus loads carrying 1,982 people participated in the Cheese Days Educational Farm tours from 2010-2014. All of the participants gained a better understanding on how dairy producers take care of their land and their animals. The tours were beneficial in tearing down some of the stereotypes that many consumers had about modern dairies and milk production. They also left with a better understanding that modern farms are not factory farms and that dairy producers practice good animal welfare and land stewardship. They also gained a better appreciation in regards to the amount of labor, capital and risk that is involved in producing their food.

This agent presented to 13 different civic groups on Agriculture Trends from 2010-2014. Over 500 participants were able to gain a better understanding of modern agriculture practices and learned the economic importance of agriculture to the Green County and Wisconsin economies.

## **D. 2012 Drought Programs**

**Situation:**

Green County was classified as an Extreme Drought area from July through December 2012. The combination of record high temperatures and lack of rainfall resulted in much of the corn and soybean crops wilting, poor pollination, and alfalfa fields going dormant. The weather extremes had a large impact on Green County farmers with corn and soybean yield losses ranging from 50-100% on the majority of the fields in the county. After observing their parched corn fields for several weeks area farmers reached a panic mode by mid-July with a few of our large farms started to harvest corn as silage prematurely as they thought the plants were dying. Although the corn plants looked like they were dying they were not, and were too high in moisture to properly ferment resulting in the loss of both yield and quality of the silage. This agent was surprised at how many farmers, nutritionists and agronomists had not experienced a drought and their lack of knowledge on dealing with drought issues.

**Response:**

To address this issue this agent helped to organize three drought related informational meetings to address concerns about plant mortality, spider mites in soybeans, nitrates in corn silage, pricing drought stressed corn silage, alfalfa cutting management, alternative forage options, corn smut and aflatoxin concerns, crop insurance guidelines and mental health issues being faced by farmers in the Green County area as a result of the drought. The first two meetings were sponsored with Badgerland Financial on July 12 in Albany in the afternoon and in Monroe during the evening. This agent was asked to speak at both meetings addressing the many of the topics listed above. A third meeting was coordinated by this agent and our Family Living Agent and held on August 16th. **(Exhibit 4)** The United Methodist Church agreed to sponsor a free lunch for farmers impacted by the drought and to pay for Roger Williams to speak on the mental health issues related to the drought. This agent addressed the drought related topics listed above and answered questions from the audience.

This agent also secured free Nitrate and Dry Matter testing for fresh corn plants that farmers could bring to this meeting through an arrangement with Agri-King Labs and by securing the portable NIR forage testing unit from the Arlington Research Station through Randy Shaver. This agent used this unit in Green County for several weeks to provide farmers with rapid testing results for DM content of corn silage. Numerous radio programs, fact sheets and a drought web page were also developed by this agent to provide farmers with information on dealing with drought issues.

### **Results/Evidence:**

Over 350 farmers and agribusiness representatives (veterinarians, lenders, agronomists and nutritionists) attended the one of the three drought informational meetings held in the county. Through the use of the portable NIR Forage Testing unit that was housed in the Green County UW-Extension Office for several weeks this agent was able to run free Dry Matter tests of corn silage plants in about 5 minutes while farmers waited for the results. This free testing service was also used by area nutritionists who brought samples in for testing for their clients so it also had a multiplier impact. Through the use of the portable NIR Unit this agent ran over 30 corn silage samples for free and rapidly get this critical moisture level information back out to farmers and nutritionists. Letting them know that the moisture levels of the wilted com plants (that appeared to be dead or dying) were still in the 70-80% range and that they needed to stop their premature corn silage harvest.

Based on just the farmers this agent talked to directly, these actions prevented over 4,000 acres of drought stressed com silage from being chopped prematurely in the area. By delaying harvest by about 4-6 weeks farmers saw increased forage and grain yields from the rains that later occurred in late July and August. The delay also resulted in the harvest of plants with moisture levels more favorable for good fermentation. This ensured the already reduced yields of feed were not going to be reduced further due from poor fermentation in storage. 38 samples of corn silage were brought in by farmers for free nitrate testing at our August 16th drought meeting. Nitrate levels ranged from 19 to 4,326 PPM and moisture levels ranged from 63-76%. **(Exhibit 4)**

The test results were shared with the farmers on the radio and were also posted on our website and helped everyone to get a better gauge of where we were with nitrate and plant moisture levels in their com fields. 11% of the samples tested over 1,000 PPM for nitrates. These feeds could have been toxic to cattle if not feed correctly based on the test results. Because of the rapid response needed for setting up these drought meetings no official evaluation survey was developed. However, this agent received more positive comments and a higher level of appreciation from farmers participating in these meetings than I've had for any other educational program in the past 30 years. They were appreciative of the information I was able to provide based on my past experience and many thanked me and stated that they learned a great deal after the meetings. This agent responded to over 400 individual inquiries regarding the drought from July through October.

## **2. Team Work/Community Collaboration**

- Clean Sweep Hazardous Collection Programs in 2013 and 2014 done in cooperation with County Land Conservation, Health, Emergency Management and Highway Departments as well as several townships and municipalities
- Collaborated with County Solid Waste Board, Landfill Manager and CRND Educator in implementing an Ag Plastic Recycling Program for farmers in 2014
- Serving as a Director on the Blackhawk Technical College Board
- Collaborated with Farm Service Agency in conducting several education meetings on Dairy MPP and the 2014 Farm Bill Crop Programs
- Collaborated with Green County Highway Commissioner, Sheriff Department, Farm Bureau and Towns Association in conducting informational meetings on new IoH laws
- Working with UW-Extension and NPM in conducting corn and alfalfa research plots
- Advisor to the Green County Master Gardeners Association, Green County Beef, Sheep and Pork Producers, and the Dairy Youth Recognition and Meat Auction Committees
- Milk Quality Board is used to determine and support educational dairy programming. Board is made up of a dairy processor, farmers, Ag lender, milk equipment dealer, veterinarian, dairy supply representative and Ag builder
- Founder and Board Member of Monroe Excellence in Education Foundation

- Cheese Days Educational Farm Tours done in conjunction with Cheese Days Inc. and Monroe FFA
- Conducted and Taught Nutrient Management classes in cooperation with Green County Land & Water Department
- Drought Informational meetings in 2012 held in cooperation with area churches, feed dealers, Farm Service Agency and local crop insurance agents
- Assisted County Land and Water to develop a County Farmland Preservation Plan
- Serve on the Agriculture Advisory Committee for Blackhawk Technical College

### **3. Contributions to the Profession/University**

- Agriculture and Natural Resources Extension Futures Work Group 2014 - Present
- Department Representative for Preliminary Ag Educator Interviews 2012 - Present
- Southern Wisconsin Agriculture Group Advisory Board 2012 - Present
- WACAA Awards Committee Chair 2011 - Present
- Department of Ag and Life Sciences (DALs) Professor Committee 2011 - Present
- DALs and ANRE Mentor for New Ag Educators 2005 - Present
- Member of the UW-Extension Dairy Team 2000 - Present
- Department Head for Green County UW-Extension 1991 - Present
- National Mastitis Council Member 1988 - Present
- Member of WACAA and NACAA 1985 - Present
- Animal Husbandry Conference Steering Committee 2011 - 2014
- Testified to WI State Assembly Rural Affairs Committee 2011
- Presented to U.S. North Central Region Ag Extension Directors 2011
- DALs Tenured Faculty Review Committee 2007 – 2010

### **4. Applied Research and Publications**

- UW-Extension Sulfur Research Plot on Alfalfa with NPM 2014 - Present
- Agriculture Plastic Recycling Research 2008 – Present
- UW-Extension Nutrient Management Corn Demonstration Plot 2013
- “Cow Environment and Milk Quality”, *Wisconsin Agriculturist* March, 2013
- “Implement Heat Abatement Systems Early”, *Wisconsin Agriculturist* June, 2012
- “Building Proper Calf Housing”, *Wisconsin Agriculturist* November, 2011
- Annual Dairy Articles for *The Dairy Partner/El Compañero* 2012 - Present
- Green County Agri-News Newsletter (Circulation 813) 1985 - Present
- Monthly Green County DHIA Newsletter (Circulation 203) 1985 - Present
- Hill Mustard Control Research Plot 2008 -2011
- “Dairy Modernization Works for Family Farms”, *Journal of Extension* October 2010  
(Exhibit 5)

### **5. Administrative Responsibilities/Grants**

This agent has served as the Department Head for the Green County Office from 1991 to the present. Responsibilities include: budget preparation, hiring, mentoring, coaching and evaluation of support staff and faculty, conducting staff meetings, civil rights review, office personnel issues, and for maintaining good working relationships with local and state elected officials. Approximately 25% of this agent's time is spent carrying out these administrative duties.

This agent chairs the Green County Clean Sweep Committee and has applied for, received and handled \$43,550 in grant funds over the past three years to establish a permanent Clean Sweep collection site in Green County for farmers and homeowners.

## 6. Professional Development (past 5 years)

- WI DATCP Foot and Mouth Security Training, Madison 2014
- Webinar on Cow Behavior in Robots, Penn State 2014
- Webinars on New Farm Bill, UW-Extension 2014
- Joint Council of Extension Professionals State Conference 2012 - 2014
- Regional Soil, Water and Nutrient Management Meetings 2011-2014
- 4 State Dairy Conference, Dubuque, Iowa 2011 - 2014
- UW-Extension Dairy Team Meetings, Madison and Marshfield 2010 - 2014
- UW-Extension Leadership Conference 2010 - 2014
- Southern Region ANRE Meetings 2010 - 2014
- World Dairy Expo, Madison 2010-2014
- ANRE State Conference 2010-2014
- Ag Plastics Recycling Webinar, UW-Extension 2013
- UW-Extension Forage Technology Conference, Arlington 2013
- Midwest Manure Summit, Green Bay 2011 & 2013
- Feed Inventory Webinar, UW-Extension 2012
- Drought Webinar, UW-Extension 2012
- Beef Quality Assurance Training, UW-Extension 2012
- Midwest Animal Husbandry Conference, Madison 2010 & 2012
- Livestock Gross Margin Training, UW-Extension Webinar 2011
- Ingestion Training: Radiological Impacts on Agriculture, Beloit 2011
- Dairy Cow Behavior Webinar, Hoards Dairyman 2011
- Management of Fresh Cows, Webinar, NACAA & UW-Extension 2010
- Dairy Stall Design Webinar, Penn State 2010
- Center for Dairy Profitability Boot Camp, WI Dells 2010

## 7. Future Plans for Professional Improvement (See attached Page)

## 8. Additional Programs

- UW-Extension Cattle Feeder Clinic, Monroe 2014
- Nutrient Management Classes 2010-2014
- Weekly and Monthly Agriculture Radio programs on Big Radio 2010-2014
- Spring Master Gardening Seminars, Monroe 2010-2014
- Youth Dairy and Meat Animal Auctions, Green County Fair 2010-2014
- Pesticide Applicator Training 2010-2014
- Level One Master Gardener Trainings, Monroe 2010, 2012 – 2014
- Swine PQA/TQA Training 2013
- Advanced Crop Nutrient and Tillage Seminar 2013
- Affordable Health Care Seminar for Farmers, Monroe 2013
- Impact of Heavy Equipment on Rural Roads: Act 377 2013
- Farmland Rental and Lease Seminar 2012
- Farm Transfer Seminar, Monroe 2011
- Co-Chair and Presenter for Tri-County Safety Day for First Responders, Evansville 2010

# **Five Year Professional Improvement Plan**

## **Mark W. Mayer**

### **2015 - 2019**

My five year professional improvement plan will be impacted by both time and funding. Green County does not provide reimbursement for travel and professional development expenses if the events are more than 150 miles from the border of the state. Therefore, I will plan to continue to rely heavily on Webinars offered through UW-Extension, other Land Grant Universities and Hoards Dairyman. Many times these events are free and provide excellent return for the time and investment put into them. I'm particularly interested in learning more about dairy cattle behavior and the housing systems and management that contribute to greater cow comfort. I would also like to learn more about Ag plastic recycling and take a refresher course in the use of the FINPACK Financial Software to better assist farmers with writing business plans and calculating cash flows for modernizing and expanding their farm businesses.

#### **Self-Directed Professional Development**

- Annual Joint Council of Extension Professionals Conference
- UW-Extension Dairy Team In-services
- UW-Extension Forage and Livestock Team In-services
- 2015 Midwest Manure Summit, Green Bay
- Cow Comfort Webinar, Penn State
- Dairy Modernization Webinar, Penn State (Dr. Kammel)
- Collection and Use of Data from Robotic Milking Systems Webinar, Penn State
- Wisconsin Dairy and beef Well Being Conference, Kimberly
- Annual 4 State Dairy Nutrition Conference, Dubuque
- World Dairy Expo
- FINPACK Training
- Regional or National Mastitis Council Meeting

#### **Institutional Program Development Activities**

- Southern Region All Faculty In-service Meeting (2 annually)
- Annual Statewide ANRE Program Conference
- Southern Region ANRE Meetings
- Annual UW-Extension State Leadership Conference
- UW-Extension ANRE Friday Morning WisLines