

# Zen W. Miller

Department of Agriculture and Life Sciences

Tenured Faculty Review

April, 2016

**Position:** Outagamie County UW-Extension Dairy/Livestock Agent  
1996 – Present

**Rank:** Professor – Granted July 2006

## **1. Program Development/Implementation/Teaching/Impacts:**

### **A. Dairy Management:**

#### **Situation:**

In May of 2013 Outagamie County ranked third in milk produced in Wisconsin and twenty-fifth among counties in the United States. This milk is produced by 38,500 high producing cows, in herds ranging from 30 cows to over 6000 cows. Over the last decade farms have expanded and modernized which increased the need for employees who milk cows, determine estrus, provide calf care, check fresh cows, and assist cows with calving. Because of a labor shortage of local workers and pay differential with workers in Mexico, Hispanic workers here do a large part of this work in Wisconsin. Recently four farms have added robots to milk their cows thus reducing the need for hired labor. One of these farms hosted Breakfast on the Farm which showcased this new technology to over 7000 people. Each month Outagamie County producers harvest over 95,823,000 pounds of milk. Improving somatic cell counts, herd reproduction, animal care and feeding practices are critical elements to herd profitability. With this increased herd size more scrutiny has been given to practices that might cause pain to dairy cattle. The National Dairy FARM program has been adopted by many processing plants to document and improve animal care and welfare practices. Prices for milk have varied greatly over the last five years with milk prices going from a low of around \$13 per hundred to over \$24 per hundred. Currently producers are struggling with low milk prices in 2016.

#### **Accomplishments:**

The commodity super cycle of record high grain prices, which later brought record high milk and livestock prices changed our feed paradigms. These prices forced dairy and livestock farmers to look at alternative feeds. Outagamie County is home to Great Lakes Kraut Company which produces sauerkraut and harvests several thousand acres of cabbage. In 2012 the plant generated 27,877 tons of cabbage waste with an estimated 11,918 tons fed to livestock, mostly dairy cows and heifers. This generated an estimated \$59,590 cost savings over land-spreading the waste product. Plus the added benefits of not land-spreading which increases cabbage disease for several years on the ground which had waste spread on it. The following year 2013 it was estimated farmers replaced about 8000 tons of corn silage by feeding waste cabbage (**Exhibit 1**). This agent collected milk from a herd of cows that was being fed cabbage waste and had cheese made that was tested and evaluated at the center for dairy research in Madison. After the cheese had aged a meeting was held to discuss how much cabbage you could feed to your cows without tainting the milk with off flavors. I also co-authored a factsheet with my part time dairy agent Liz Binversie to help other farmers know how much cabbage waste could be fed and what price they could pay compared to corn silage to save money (**Exhibit 2**). Because there was some cost to collect milk, haul to small local cheese plant and have the Center for Dairy Research analyze the cheese this agent wrote a small grant funded by the Department of Agriculture and Natural Resources to evaluate and document the amount of cabbage waste safe to feed and that the cheese made from this milk was not causing problems for the cheese factories.

This agent has been certified to train dairy industry personnel to assess farms for the National Dairy FARM program since 2009 and has trained over 80 people in the last five years. Many of these dairy professionals are from Wisconsin and either work for a cheese company that has adopted the National Dairy FARM program, or UW-Extension as a county agent. The other professionals have come to trainings from many other states including Florida, Pennsylvania, Ohio, Virginia, and Arizona to name a few. To be certified the students need to pass a test and learn how to evaluate cows for hygiene, body condition, lameness, and hock abrasions. They learn skills to facilitate an assessment process that asks the farmers questions and looks for documentation on protocols. This system has developed a way for the dairy supply chain to quantify and assess that the farmers are caring for their animals in a way that assures animal well-being, quality care and reduced drug use. By training others to assess dairy farms this agent is using the multiplier affect to improve animal well being and improve farmers care of animals which

should lead to improved production and efficiency. Consumers should feel confident that their dairy products are produced in a caring and healthy way.

Annually a Dairy Beef Animal Well-being Conference has been held in Wisconsin. I have had the opportunity to help plan and host several of these conferences and twice we have been able to have Temple Grandin be our key note speaker in Appleton. Although I have not presented at this conference, I have been involved in the planning and conducting when it has been at Liberty Hall in Outagamie County. We have changed the format to include more youth as the committee felt introducing younger FFA and other agriculture youth would benefit the animal care given in Wisconsin. The youth emphasis let more young people hear the topics and see Temple Grandin. This has continued in 2016 as well.

In the summer of 2015 this agent and summer intern Bethany Marcks launched a dehorning / disbudding program to encourage dairy farmers to dehorn or disbud earlier and/or use pain medication to reduce the stress on young calves when performing this procedure. I had worked on this topic with a small survey of dairy farmers in 2014 but now was ready to demonstrate the products and procedures to adopt a better way to dehorn and/or disbud dairy calves. We also handed out a list of polled bulls to encourage a way to eliminate the whole procedure of dehorning. During the summer 46 farmers were contacted and 22 farms had a demonstration of these dehorning practices. Fifty farmers and employees were trained in these new procedures. This team dehorned or disbudded 179 calves, of which 48 calves were dehorned with a hot iron with lidocaine and meloxicam, 39 calves were disbudded with Dr Naylor's paste and 41 with Dr Larsen's paste, other calves were dehorned with no meds, or one of the recommended medications were used. I taught this material at the Farm Management update for ag bankers, with about 60 bankers in attendance and both Freedom and Seymour FFA animal science classes, as well as the Quality Milk Council barn meeting in November. I helped Bethany Marcks develop and teach the material at Cow College in Clintonville (**Exhibit 3**). On slide 8 the survey results are shared with the area farmers at Cow College. Here we see that farmers increased their knowledge about using pain management, dehorning earlier and using polled genetics. However, polled genetics was the practice where less interest was shown by the farmers. Of the 14 farmers who returned surveys, three farms went from burning to dehorn to using the paste at an early age, 3 farms burned horn buds at an earlier age and two farms increased the use of lidocaine and meloxicam. I also had two calf cadaver heads cleaned like a European deer mount to show when the horn buds attach to the skull. The next step in the educational process is to write an article for the Hoard's Dairyman or another publication to multiply the effort of this disbudding project.

#### **Seminars/Workshops:**

Quality Milk Barn Meeting – Veterinary Feed Directive, Voight Acres, November 2015  
Quality Milk Barn Meeting – Dehorn, Disbudding or Polled, Doug Behnke Farm, November 2015  
National Dairy FARM - Train the Trainer, Jackson Point, Seymour, May 2015  
National Dairy FARM - Train the Trainer, Marshfield Research Station, Marshfield, January 2015  
Quality Milk Barn Meeting – National Dairy FARM Program, Dan Madden Farm, Bear Creek, November 2014  
National Dairy FARM - Train the Trainer, UW-Extension, Wausau, July 2014  
National Dairy FARM - Train the Trainer, ABS Global, DeForest, March 2014  
Quality Milk Barn Meeting – Cost of Heifer Raising – ICPA Review, Jim Simon Farm, November 2013  
Quality Milk Barn Meeting – Alternative Feeds, Bruce Long Farm, Bear Creek, November 2012  
National Dairy FARM - Train the Trainer, UW-Extension, Clark County, October 2013  
National Dairy FARM - Train the Trainer, UW-Extension Appleton, September 2012  
National Dairy FARM – Train the Trainer, UW-Extension Appleton, July 2012  
Outagamie Forage Council, Manure Starch, Seymour, January 2012

## **B. Livestock**

### **Situation:**

Dairy is the major livestock industry in Northeastern Wisconsin. Many producers are raising swine and beef cattle on a smaller scale with little industry help as they strive to remain profitable. Producers are given limited help from veterinarians, nutritionists, and other suppliers because of low numbers of each species and the limited expertise it brings to their skills. This agent has served on the livestock team and the swine team for a number of years and has been the swine team leader since 2012. Producers need to receive animal quality assurance programs and marketing help. As small producers exit the dairy industry and want to find another enterprise to earn income, beef production is being evaluated as an option.

### **Accomplishments:**

Attendance at the national Galaxy Conference to receive my Distinguished Service award gave me the opportunity to see what programs and projects agents in other states developed. One of the ideas shared was a Bacon contest held in Kentucky. When I came home I had in mind that our youth could learn about processed meats and curing from a similar contest. I organized a committee consisting of the swine resource leader and pork producer, two local meat processing plants, (one of which was just taking over a plant) and the state meat specialist, Jeff Sindelar and state youth livestock specialist, Bernie O'Rourke. The 2014 eighteen youth participated and in 2015 fourteen youth completed the activity. The Bacon contest consists of three meetings each year. Youth learned about quality bellies, how to select, comb and hang and cure the product. Some youth had their own pork bellies from a swine project; others used the pork from a commercial operation. I taught that what your pigs eat affects quality and taught how to balance a ration and what happens when you feed too much vegetable fat in the ration (**Exhibit 4**). The youth suggested several flavors of bacon and the Meat Block personnel made eight flavors one year and four the next. The youth evaluated the program highly and many youth have participated both years. They voted to try making hot sticks next year so kids with beef, pork, lamb or goats would be encouraged to participate. This program has been developed so other counties could hold their own contest with curriculum developed that others could copy. A neighboring county has held a brat activity where kids made brats to learn sausage making as well.

Pork Quality Assurance Plus (PQA) has been a large part of my Swine Team effort over the last five years. Each year I have held multiple meetings to certify both advisors and pork farmers. I have also done a limited amount of on-farm assessments for this program. Usually the farmers are surprised to be asked for written protocols and now they are to make a plan to take corrective action if they have steps to take to comply with the programs record keeping. The nice thing about being a trainer is most people who are certified as advisors I have trained and they then certify producers, which gives this effort a large multiplier effect. In the last five years I have trained 20-30 PQA advisors, which includes Extension Agents and veterinarians. I also teach Transport Quality Assurance (TQA) which trains farmers and truckers in all aspects of animal welfare as they haul swine to market channels. The Swine Team has developed Badger Swine Symposium as a yearly educational program that rotates from UW-Platteville, UW-River Falls and the Arlington Research Station. This rotation lets each campus be more involved in the event and encourages college students to attend and mingle with swine industry professionals. Without the college students our attendance would be rather small and might discourage us from continuing the program. It also serves as outreach to bring swine career options to the minds of these students. Although dairy is the primary livestock industry in Wisconsin the swine industry in the United States is always looking for well-trained students to start a career in swine production or processing.

The swine team has worked with others to write, print and distribute the white paper “An Assessment of the Wisconsin Swine Production Sector.” This paper describes the swine industry in Wisconsin and shares a “SWOT” analysis that discusses the strengths, weaknesses, opportunities, and threats that affect the swine industry in Wisconsin. The paper showed how the swine industry has declined in numbers over time and now has only two large sow harvesting plants operating in the state. This decline has led to an opportunity to build larger modern sow housing units and/or finishing buildings in areas closer to processing plants in Minnesota, Iowa and Illinois. An advantage then becomes the bio-security that can be maintained because of less density in hog numbers as a whole. An interesting off-shoot of this paper was the presentation by this agent of what a CAFO unit looks like and why farmers build them. I gave this presentation in Bayfield County as there was a large sow unit proposed in that northern county. This presentation was given twice and recorded and shown on Wisconsin Public TV (**Exhibit 5**). I used information from both the swine industry and dairy industry and especially showed the data from the dairy modernization group survey about the increased productivity of dairy farms after they modernized. Another initiative the swine team has established are quarterly news releases being sent to the state agriculture papers. This effort started in 2013 I have written two articles that appeared in the Agriview newspaper. One was on Alternative Feeds and the other was promoting the white paper “An Assessment of the Wisconsin Swine Production Sector.” All members of the swine partner group that meets in September are given the chance to write articles for the media. Currently I am assigned to write on the Veterinary Feed Directive. This effort gives UW-Extension some visibility and gets information out to swine producers who are not able to attend meetings or not inclined to do a search on the internet for swine information.

#### **Seminars/Tours:**

Transport Quality Assurance – UW-Extension, Appleton, March 2016  
Cattle Feeder Clinic & Beef Tour – Wagenson Farms, Deer Creek Town Hall, February 2016  
Beef Quality Assurance – Equity Livestock, Reedsville, February 2016  
Transport Quality Assurance – UW-Extension, Green Lake, February 2016  
Pork Quality Assurance Plus – UW-Extension, Appleton, December 2015  
Pork Quality Assurance Plus – UW-Extension, Fond du Lac, December 2015  
Northern Lights Series, CAFO: Why, What, and Pros and Cons, Ashland, July 2015  
Pork Quality Assurance Plus – UW-Extension, Appleton, May 2014  
Pork Quality Assurance Plus Advisor Training – UW-Extension, Wausau, April 2014  
Pork Quality Assurance Plus - UW-Extension, Green Bay, March 2014  
Pork Quality Assurance Plus – Equity Livestock, Reedsville, January 2014  
Pork Quality Assurance Plus Advisor Training – UW-Extension, Jefferson, June 2013  
Pork Quality Assurance Plus Advisor Training – UW-Extension, Eau Claire, June 2013  
Pork Quality Assurance Plus Advisor Training – UW-Extension, Lancaster, May 2013  
Pork Quality Assurance Plus Advisor Training – UW-Richland, Richland Center, May 2013  
Pork Quality Assurance Plus – UW-Extension, Appleton, December 2012  
Pork Quality Assurance Plus – UW-Extension, Fond du Lac, December 2012

#### **2. Examples of Teamwork:**

Numerous on-farm dairy management teams; active member of the Dairy Team; County Emergency Board member; work with numerous county and city departments on various issues; work closely with WDATCP, Department of Commerce, DNR, NRCS, Farm Service Agency, North Star DHI, Outagamie County Holstein Association, Dairy Promotion Committee, Fox Valley Technical College Farm Trainers, local veterinarians. Yearly farm tour for UW-Green Bay Dietician class to organic, large and small dairy farms and processing plant have been held from 2012 - 2015 and are planned for the future. Swine Team meetings to develop increased swine programming with cooperation from CALS, UW-Extension, Wisconsin Pork Producers and swine industry leaders.

### **3. Contributions to the Profession and/or University:**

WACAA Awards and Recognition Chair 2015 to present  
Member of WACAA and NACAA 2012 to present  
Member of ANRE Dairy Team and Livestock Team 2012 to present  
Member of ANRE Swine Team 2012 to present  
ANRE Mentor 2013 to present  
Swine Team leader 2013 to present  
Member of the Department of Agriculture and Life Sciences Tenured Faculty Review Committee 2012 - 2014  
WACAA Board 2012 - 2013  
Chair of the 2012 Farm Technology Days Education Committee  
Milking Shorthorn Superintendent, World Dairy Expo 2012

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

Feeding Cabbage Waste, Factsheet, Co-Author with Liz Binversie, May 2013  
An Assessment of the Wisconsin Swine Production Sector, Co-Author with Adam Hady, Dave Wachter, Mahlon Peterson, Ed Jesse, Pat Luby, Bill Gnatzig 2013

### **5. Administrative Responsibilities and/or Research Programs:**

Cabbage Waste Feeding and Cheese Quality, Fall 2012 to Spring 2013  
Wisconsin Farm Progress Days Educational Committee — 2012 (Chair)  
Coordinate and Administer Outagamie County 4-H Dairy Programs/Tours

### **Grant Proposals Accepted and Grant Administration:**

\$620 Cabbage Waste Feeding and Cheese Quality, Agriculture and Natural Resources Program, Fall 2012

### **6. Professional Development (past five years)**

UW School of Veterinary Medicine In-service 2015  
World Pork Expo 2015  
MAQA Recertification Webinar 2012 to present  
Swine Educators Conference 2012 to present  
Wisconsin Pork Expo 2012 to present  
Wisconsin Farm Technology Days 2012 to Present  
Dairy Team In-service 2012 to present  
Wisconsin Public Service Farm Show 2012 to present  
Numerous Eastern District UW-Extension Sponsored Seminars 2012 to present  
Faculty Tenure Workshop - 2012  
Beef Team Inservice – Spooner – 2012  
Transport Quality Assurance Certification - 2012

### **7. Future Plans for Professional Improvement (see separate sheet)**

### **8. Additional Programs, Awards:**

2015 Outagamie Holstein Breeders – Distinguished Service Award  
2015 Wisconsin Pork Association – Agri-Communicator Award  
2014 WACAA Communication Award – Fact Sheet  
2013 WACAA Distinguished Service Award  
2013 Team Work group Leadership & Responsiveness Award – Swine Team

New programming will be added as a result of the new Veterinary Feed Directive that goes into effect January 1, 2017. This rule will affect veterinarians, feed mills and distributors, and farmers with many different species of livestock. The veterinarians will be writing scripts and inclusion levels of different antibiotics. All parties will need to keep scripts for two years on file and be ready for an FDA inspection. Those dairy farmers who sell milk to a processor who is involved in the National Dairy FARM program will need to stop docking tails as of January 1, 2017 as well. This may serve as a double whammy for the dairy farmers. With the milk supply being high, processors have plenty of leverage to have farmers comply with this policy to keep the consumers and food supply chain happy. Thus, I see that the animal well-being issue will continue to be a topic for future programs. Farm families will be increasingly asked to be transparent and participate in quality assurance programs that are being encouraged by people with little farm background.

As farms continue to get larger and more business-like, agent educators will be placed under more scrutiny to provide training on business management, human resources and production agriculture. Competition for the farmer's time and educational dollars will intensify and push us to more specialization. New ways to reach our audiences may include text, twitter, web-based documents and social media. Farmers can access material while they sit in their auto steer tractors or check their phones and computers during the work days.

During the UW-Extension reorganization process and beyond some agents will flourish as they see new job descriptions that specify new job functions and tasks. Other agent educators will have trouble adjusting to changes after many years of developing relationships with local farmers and agriculture professionals. I have concern over attitudes that may need adjusting after loss, change, and new directions. I hope to see new programs emerge as agents push forward in times of change and concern. I hope to work to encourage younger new educators to think outside the box and achieve effective educational delivery in a variety of ways.

Finally, it is my hope to deliver exceptional educational products in a cost effective environment until my last days of my career. I also hope I can work with other agents to help them plan and develop programs that help them forge a career that may be much different than mine and even better in many ways.