

UW Extension Department of Agriculture and Life Sciences
Tenured Faculty Review Report- Fall 2017
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General Overview: Beef cattle production and management, agronomic crop production and management, and small scale commercial horticulture and specialty crops have continued to be my primary programming areas over the past five years. Long term vacancies in neighboring counties have significantly reduced the sharing of expertise that historically took place. I still work closely with the Agricultural Agents in Buffalo and Richland Counties to coordinate workshops and outreach efforts.

Beef Cattle Production and Management

Situation Statement: Over the past 5 years, beef cattle prices have gone from the highest prices many people ever saw in their lifetimes to back to prices seen the prior 10 years. Extreme price volatility and tight margins are common and consumers continue to place increasing demands on where their food comes from. During this time UW Extension did not have a Beef Specialist on campus, and I served as the primary leader of the Beef Team that was comprised of County Extension Agents to fill the gap and maintain programming and outreach.

Response and outcomes:

Cattle Feeders Workshops

The annual UW Extension Cattle Feeders Workshop series is the primary face to face outreach event used to reach farm operators and allied industry involved with finishing out and backgrounding beef cattle. This is an annual series we hold at 7 to 8 locations around the state in February or early March, with attendance ranging from 350 to 400 participants. I have lead organization efforts in cooperation with Adam Hady and Brenda Boetel to determine topics and organize the locations and workshops.

In 2013 and 2014 we had secured grant funding to help fund the Cattle Feeders Workshops and were able to bring in keynote speakers from out of state. We have used UW Extension Specialists and UW Researchers as keynote presenters since 2015.

In 2014, I prepared a presentation on the importance and value of bedding in the feedlot for host agents to present at the workshops, and in 2016 I presented the results of the UW Extension Cattle Feeders Yardage Survey. In 2015 I prepared and presented "Keys for Producing High Quality Holstein Steers" at the Marion location. I have updated the example budget scenarios and used them different times since then. Dr. Schaefer used them in his 2017 cattle feeder's workshop topic. He also used them when he presented in Japan in the summer of 2017.

As part of the workshop evaluation in 2017 Adam and I included some long term impact questions. Participants were asked if they made changes based on what they learned from previous workshops for different general topics and asked to give some examples of changes they had made. There were 159 surveys turned in and the following are the results of the long term section of the evaluation.

- Seventy-five respondents indicated that they had attended a cattle feeder's workshop in the past.

- Thirty five respondents indicated they had made changes in vaccination protocols and/or castration methods.
- Thirty-one respondents indicated they made changes with use of by-product feeds, and/or mineral programs.
- Nineteen respondents indicated they had made changes to their implant programs by making changes to potency and timing.
- Thirty-four respondents indicated they used information they learned to make changes to their cattle housing and/or handling facilities.
- Thirty-five respondents indicated they made changes to improve their marketing of the cattle.
- Seventeen respondents indicated they had used at least one of the spreadsheet tools on the Wisconsin Beef Cattle Improvement Website.

Driftless Region Beef Conference

In 2012 Denise Schwab, Iowa State Extension Area Beef Specialist, contacted Extension counterparts in the Driftless Region in Wisconsin, Minnesota and Illinois to investigate the feasibility of conducting a multistate Extension Beef Workshop for producers. I have been on the planning committee since we began. The first two day conference was held in early 2013 at Dubuque Iowa, and it has been held there every year since, with plans in place for the 2018 conference. As part of the planning committee, I have identified topics and speakers and have presented at the conference. I was instrumental in securing Jude Capper, as keynote speaker in 2015. Dr. Capper has done considerable research on investigating the sustainability of beef production from a practical standpoint. I also presented the results from our UW Extension Yardage Study in 2016.

Yardage Survey

Brenda Boetel, Amy Radunz, Adam Hady and myself received USDA Risk Management Agency (RMA) funds to conduct a Yardage (overhead) cost study of Wisconsin farms finishing Holstein steers in 2012 (**Exhibit 1**). Due to Amy leaving and other position changes it took considerably longer than anticipated to complete the study. I ended up being the project lead. In the end we had seventeen farmers willing to cooperate and provide usable information. Yardage costs ranged from \$0.47 per head per day to \$1.45 per head per day. The average yardage was \$0.95 per head per day and the median was \$0.85 per head per day. The final report of the project is peer reviewed by Gary Hachfeld, University of Minnesota Extension, and posted at the Wisconsin Beef Information Center Website. The report is also posted on the Ag Risk Library at the University of Minnesota Center for Farm Financial Management website. I presented the results at the 2016 UW Cattle Feeders Workshops and the 2016 Driftless Region Beef Conference. In addition they were also presented at the 2016 Southern Agricultural Economics Association's Annual Meeting in San Antonio, Texas by Dr. Boetel.

I co-authored Building Costs Estimates for Beef Related Facilities that with David Kammel to provide people with starting places for building and facility construction and remodeling upgrades. I also did a major revision to the Yardage Calculator Spreadsheet. I simplified it to a practical but complete approach to determining overhead costs and related costs for cattle feeding operations. These two resources were done to compliment and build on the yardage survey report.

In addition to respondents from the Cattle Feeders survey indicating they have used the spreadsheet, the former Beef Feedlot Field Educator in Minnesota indicated that she has shared the written report and the yardage spreadsheet with numerous beef producers in Minnesota via workshops and one on one visits and consultations.

Related to overhead costs, I have worked with eleven farms on beef cattle building plans along with David Kammel over the past five years. Nine were constructed and two are in planning stages.

Feeding Considerations during the Drought

I assembled a presentation on minimizing feed loss in both storage and feeding in 2013 and shared that with the Western Wisconsin Beef Producers Cooperative at their annual meeting. This was to help area beef producers through short feed supplies and high feed costs. I also presented information on feeding considerations for the cow herd at their annual fall cow-calf workshop. The President of the organization shared with me 6 months later that four of the members built hay storage sheds because of what they learned from the presentation and that a number of producers had implemented several of the feeding management practices that I had showed them in the presentations.

To compliment the presentations, I developed two partial budget decision tool spreadsheets that allowed users to evaluate the economics of a different method of feeding hay, primarily focusing on feed loss/ utilization and another on substituting corn for hay when overwintering beef cows. These spreadsheets were promoted on the Wisconsin Beef Information website. The substitution of corn spreadsheet was featured in the monthly Wisconsin Agriculturist Beef Column written by Zen Miller. I promoted and shared the spreadsheet tools with several farmers in the area. Travis Meteer, University of Illinois Extension, co-author of the feeding method spreadsheet, indicated that he used both spreadsheets with several producers during the feed shortage.

Beef Quality Assurance

Sandy Stuttgen, John Freitag and I continued the Beef Quality Assurance (BQA) continuing education credits at UW-Extension workshops we began in 2010 as an easier way for farmers to renew their BQA certification, a more timely way to present topics and as a way to promote BQA to beef producers.

This process has promoted Beef Quality Assurance and timely topics to over 7,500 beef and dairy farmers during the past seven years. We observed that covering the BQA topics and handing out CEU certificates led to several producers who were not BQA certified asking how they could get certified.

During the last 5 years Beef Quality Assurance certification training has been made available on-line through the National BQA working group. Initially twice a year Boehringer Ingelheim Vetmedica was paying for producers to get certified for free. It has recently become available free on-line year round. I promoted that through the WBIC website and news releases.

Our efforts of promoting BQA timely topics and the increased opportunities for people to become BQA certified has resulting in the number of officially certified Wisconsin farms increasing from 275 to 1,375 in the last 5 years.

In 2016 Sandy Stuttgen, Kory Stalsberg, Cheryl Skjolass and I developed educational materials for producers regarding the safe transportation of cattle and how transportation is a critical aspect of quality assurance. Our '3T: Truck, Trailer and Transport' curriculum is continuing to evolve, and a goal is to develop and deliver a cattle transportation quality assurance certification program for people transporting cattle with trailers pulled by pick-up trucks. At this time the only cattle transportation quality assurance certificate offered by National BQA is for semi-truck transporters. To date our transportation materials have been presented at the 2016 Farm Technology Days, five field days around the state and at the 2017 Bovine Well Being Conference. We have also used components of it in newsletters and news releases. At Farm Technology Days one of the livestock trailer vendors asked for several packets of the materials, he indicated that he was going to give a packet to customers who bought trailers from him.

Decision Tools

Growing consumer interest in local grown foods led to several questions from beef producers in the region regarding direct marketing of meat. Many questions revolved around costs and pricing to help determine how much to charge and how to show consumers what sort of value they may be receiving.

In 2013 and 2014 I led a group of agents in western Wisconsin to investigate how we could provide a decision tool to assist producers and consumers. I found a worksheet prepared by Jeannine Schwehofer at Michigan State for direct marketing a grain fed steer showing the costs and retail product breakdown from slaughter to take home retail product. I contacted Jeannine to determine if they had a spreadsheet version and we determined it would be beneficial to work together to develop one that would be useful in both states. We put together the Freezer Beef Pricing Worksheet (**Exhibit 2**) and created a Freezer Pig Pricing Worksheet for use with direct marketing pigs. In Wisconsin, the Agents in western Wisconsin conducted a survey of 11 locker plants to get an idea of what regional locker plants were charging for complete processing of beef animals. That information was used as the baseline information in the spreadsheet tool. It was shared with the locker plants who participated. Two locker plants in the Monroe County area were under new ownership at this time and found the information in the survey very helpful, and also indicated that they were using the spreadsheet tool to help educate both consumers and producers who were direct marketing.

Beef cattle prices declined significantly in the last quarter of 2015 from the record high prices they had been at during the previous five years. During record high prices, beef producers made record profits and there was little interest in evaluating costs of production. That changed dramatically with the decline in prices that continued on through much of 2016. The tight margins over the past two years provided a need for beef producers to evaluate their beef enterprises. As previously described I revised the yardage calculator, and in addition made some minor revisions to the feedlot enterprise budget.

The current markets provided an opportunity to develop a Cow-calf Enterprise Budget spreadsheet that was discussed but with high prices there was little interest from potential users. I led efforts and enlisted Kory Stalsberg and Ryan Sterry to develop a Cow-Calf Enterprise Budget spreadsheet tool (**Exhibit 3**). We took the approach of making it complete and yet practical for users to be able to evaluate their operation on an enterprise scale, as well as per cow and per hundred weight of feeder calf produced basis. The Cow-Calf Enterprise Spreadsheet was peer reviewed by Extension Folks in

Wisconsin, Minnesota and Tennessee. The Iowa State Beef Cow-Calf Specialist indicated that he planned to use the spreadsheet as part of his Beef Cow-calf Class. The budget tool was also promoted by Beef Magazine and The Stock Exchange on the internet. I was also contacted by manager of a large ranch in Australia who asked for an unlocked copy of the spreadsheet so they could modify the currency and units of measure to use for their ranch in Australia.

Building on the interest generated from the Cow-calf Enterprise Budget, and the increase in questions on stocker and feeder enterprises I led the group to develop significantly improved spreadsheets for stocker enterprise budgets and a feedlot closeout calculator. These spreadsheets were also peer reviewed by Extension folks in Minnesota and Tennessee. All of the new spreadsheet tools were featured in an update at the 2017 Driftless Region Beef Conference and will be featured in an update at the 2018 Wisconsin Cattlemen's Association Annual Meeting.

Wisconsin Beef information Center Website

I became the webmaster for the Wisconsin Beef Information Center website when Dr. Radunz resigned from the Beef Specialist position. The website is used for promotion of Beef workshops and field days and as a location for fact sheets, decision tools and UW Extension Beef Resources. I also post timely topics and updates. One of the more popular postings has been our annual fall projections that I have put together annually with assistance from Brenda Boetel and more recently Dr. Dan Schaefer. I was asked to present and discuss the fall projections at the 2015 Tri-State Lenders Conference in Dubuque IA where I was able to promote the feedlot enterprise spreadsheet. In 2017 we made some major revisions to the projections to include pre-conditioning feeder calves and finishing out beef heifer calves. In 2017 the website will have approximately 60,000 visits according to the Google Analytics website monitoring software. Unfortunately Google Analytics is not capable of tracking how many times fact sheets or spreadsheet tools are downloaded by site visitors. At the 2015 Driftless Region Beef Conference the website received an unsolicited endorsement from the Iowa State Livestock Economist who put the home page up during his presentation and indicated it was his favorite webpage because it was kept up to date.

Agronomy Programming

Situation: Over the past five years we saw severe drought, record high prices and most recently significant price declines. We also saw continued pressure from sales people for farmers to be applying fungicides. New technologies also became increasingly common, but the practical uses for them has yet to be determined.

Response: Primary outreach efforts for area farmers have been annual summer field days and crops updates held in the winter. I have led efforts to organize workshops in cooperation with Carl Duley, and Adam Hady. We determine topics and presenters based on interaction with growers and our observations in the field. The Specialists have appreciated that we set up where they can conduct the workshops at multiple sites in a single trip out from their headquarters. These workshops have been well attended.

I have been working with UW specialists since 2005 conducting on farm foliar fungicide tests on soybeans, corn, corn silage and alfalfa. In 2013 we worked with University of Minnesota to conduct a

corn silage fungicide trial at a location near Rochester that had a history of foliar disease pressure, and we included a brown midrib hybrid. We saw no difference in treatments at that location in 2013. I also conducted a foliar fungicide trial on alfalfa near Cashton, and the results that year were similar to what we found in the previous 4 years on a dairy quality cutting schedule. Changes the field crop pathologist made with their program research in 2013 brought field trials in this region to an end. There may be future opportunities.

The results from the alfalfa fungicide trials were published in and as the following peer reviewed articles and publications:

- Evaluating Headline fungicide on alfalfa production and sensitivity of pathogens to pyraclostrobin [2013] Samac, Deborah A. Halfman, Bill Jensen, Bryan Brietenbach, Fritz et al. at <http://www.plantmanagementnetwork.org/pub/php/research/2013/headline/>
- First Report of Stemphylium globuliferum Causing Stemphylium Leaf Spot on Alfalfa (Medicago sativa) in the United States- July 2014 in The American Phytopathological Society Journal "Plant Disease" <https://doi.org/10.1094/PDIS-08-13-0828-PDN>
- A Preliminary Update on 2013 Evaluation of Headline® Fungicide on use on Alfalfa, Bill Halfman, Greg Blonde, Damon Smith, Bryan Jensen, University of Wisconsin, Deborah Samac, USDA-ARS, Lisa Behnken and Fritz Breitenbach, University of Minnesota, Midwest Forage Association Forage Focus December 2013.
- A4090 Using Fungicides on Alfalfa for Dairy Production in Wisconsin; Damon L. Smith, Scott Chapman, Bryan Jensen, Greg Blonde, Bill Halfman and Dan Undersander (**Exhibit 4**)

I have continued to work with Carrie Laboski to conduct nitrogen rate trials on field corn. Three of the past 5 years the trials were rendered unusable by wet spring weather, however the last two years the plots were usable. The last two years we began evaluating the use of a drone and special sensor cameras to determine if we could measure differences in nitrogen rates that correlated to yield difference along with using the Crop Circle. To date the Normalized Difference Vegetation Index (NDVI index) from both the drone and Crop Circle has not detected any differences between nitrogen rates. The Normalized Difference Red Edge Index (NDRE index) has been able to differentiate the zero nitrogen rate from the other nitrogen rates, but not really separate the other nitrogen rates. We have learned that different instruments use different specific wavelength sensors that have made comparing values between instruments troublesome if not impossible. The farmer cooperators are very interested in hosting the trials on their farms because they see the value in being able to compare the plots to their management practices. Results have been shared at area crops updates. There still a lot to be learned about the use of these sensors for management decisions on crops in Wisconsin.

Fresh Market Produce and Specialty Crops

Situation: Amish farmers began growing fresh market produce in the area about the same time that I started in Extension in Monroe County. Their knowledge and experience growing produce has increased greatly since that time and as a result the amount of time and the type of programming needs they have from UW Extension has changed. I have continued to interact with them and address rising needs and new threats. Spotted Wing Drosophila Fruit Fly and vegetable crop insect and disease management

were the primary needs addressed with the fresh market produce growers. The increased interest in hops in the area has led to programming opportunities.

Response: The Spotted Wing Drosophila fly (SWD) became a serious insect pest problem for small fruit growers in the fall of 2012 with the primary target being the fall raspberry crop. Our first steps were positively identifying it and setting up traps in the area to determine how wide spread it was. In the winter of 2012 we included SWD education at our Fresh Market Produce workshop. In 2013 I worked with a commercial blueberry grower near Tomah to participate in the statewide trapping network to monitor for this pest in 2013. In addition to the trapping network cooperator, information was provided to small fruit growers on how to monitor their crops using traps. The pest did show up again in August, and small scale commercial fruit growers in the Tomah-Warrens areas were able to use the information from the trapping network to protect their crop, and to time spraying to minimize un-necessary spray applications. Growers indicated they did not lose crop in 2013 due to the SWD. The blueberry grower participated with us in the trapping network to assist with early detection for management through 2015 when the network was discontinued. We also shared the information with Amish farmers. Many of them chose to not grow fall raspberries instead of managing the insects with trapping and applying insecticides as needed. I was also part of the group that worked together to help secure funding to help get the UW Extension Fruit Crop Newsletter started.

My work with the primarily Amish produce growers has transitioned with their gaining of experience and knowledge over the past 14 years. I coordinate winter workshops and do several farm visits each year to keep in touch for needs and respond to problems. Tim Rehbein and I were able to partner with Amish farmers to conduct a training for a U.S Army Reserve group that was going to Afghanistan on a humanitarian mission to assist the indigenous people improve their standard of living. The people in Afghanistan had access to technology at about the level that the Amish choose to use. We visited several produce farms with the Army group so they could learn how Amish farmers were growing produce using their chosen level of technology. At the time when Vernon County was not going to re-fill Tim's position one of the leaders of the Amish produce auction said "None of us would be growing produce any more if it were not for what Bill, Tim and the other UW Extension folks have taught us."

Two years ago I joined the UW Extension Hops Working Group. In part to help fill Tim Rehbein's place after his retirement and because there are a handful of hops growers in Monroe County who are very willing to be cooperators with field trials to help learn about best management practices for growing hops in Wisconsin. In 2017 I worked with a grower near Tomah to conduct one of the nitrogen rate trials on three of their varieties. The results were very interesting in that none of the varieties responded the same way to the nitrogen fertilizer rates. At this time we are applying for grant funding to continue the nitrogen trials in 2018, and we are also in the process of investigating the possibility of doing some research for improving the post-harvest drying to keep the hops quality high. One of the problems identified by brewers is damage to the hops from the drying process. I am still very much a rookie in the Hops production topic.

Ho-Chunk Nation Programming

Situation: I was contacted in late 2012 by two different agencies of the Ho Chunk Nation Tribal Government to provide assistance on two different projects. One project was to help begin a

community garden program near Tomah. The other project was to help them identify and implement uses for the tribal owned farmland that would better benefit tribal members.

Response: In 2013 I worked with The Ho Chunk Housing and Community Development Agency Personnel (HHCDA) and area community leaders to identify a location, help organize the community garden. I organized webinars with Patti Nagai and Erin Silva to discuss group organization and management of the garden. We worked together to plan and construct a 40 raised bed community garden based on an arrangement that had historical and cultural meaning to the tribal members at the Ho Chunk's Blue Wing housing subdivision. The two primary goals were to provide a source of fresh producer for tribal members, many of whom are low income, and to help build a stronger sense of community within the Ho Chunk members in the Tomah area. I have presented different topics to the group at workshops, helped them with garden management, and participated in three harvest celebrations with them. They have since used the successful process at Tomah to start additional community gardens at Indian Heights subdivision near Wisconsin Dells and at Black River Falls. They now have AmeriCorps Volunteers to help manage the projects. Melanie Stacy, the tribal leader of the community garden has stated that without my help from UW Extension they would never have been able to get the community gardens going.

I have worked with the Ho Chunk Division of Natural Resources folks to evaluate and develop plans for the use of their farmland. The tribe has a total of about 1600 acres of farm land. Their Whirling Thunder farm near Tomah that was identified as the place to start. Their goals are to utilize the land to better benefit the tribal members than renting out as they are currently doing. We developed plans to grow produce for their youth sites and elderly meal sites along with small scale livestock production to start with. This project has continually run into political problems within the Tribal Government. At this time the Tribal Government has created a Division of Agriculture, but they have not fully implemented plans or a structure for it. I keep in touch with the folks I have worked with to be able to assist as needed.

Farm Safety

Several Agriculture and 4-H Agents in Western Wisconsin who are involved with teaching the Tractor and Machinery Safety Certification training and who have also offered a similar type training for employees of larger farms identified a need for more current videos to be used with the classes. The most recent videos were from 1986 and the machinery design that was current and "cool" in 1986 was now a distraction from the message.

The group secured funding and wrote the scripts to work with videographer Dave Luciani. I wrote the script and narrated the video on Pre-Operation Inspection. **(Exhibit 5)** I also helped with video of the other segments by setting up the scenarios and operating machines for the taping.

These videos are available on YouTube and DVD in English as well as Spanish. The English videos have been watched a combined total of 11,030 times, and the Spanish versions have been watched a combined total of 292 times. I know that Extension field staff and agriculture teachers in Minnesota and Iowa use the videos for their Tractor Safety programs and we were contacted by a reform school in New York requesting a DVD of the videos to use with their students.