

UW Extension Department of Agriculture and Life Sciences

Tenured Faculty Review Report

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General Overview: Beef cattle production and management, agronomic crop production and management, and small scale fresh market produce and bedding plant production have been my three primary programming areas over the last five years. In addition to these three areas, I have increased the amount of educational outreach to farm women through the Heart of the Farm workshops and Annie's Project series. The Agriculture Agents in Monroe, La Crosse, Vernon, Buffalo, Trempealeau and Jackson Counties have cooperated and shared their individual expertise across county lines and have worked together on proactive programming. This has benefited all of the agents by being able to rely on each other for meeting needs in each county.

Beef Cattle Production and Management

Situation Statement: Beef Cattle Production has faced many of the same challenges that other livestock enterprises have faced in recent years including increased market volatility, increased input costs, and shrinking feeder calf numbers due to the shrinking national beef cow herd. The increased risk and tighter margins has continued to increase the demand for top quality feeder calves.

Response and outcomes: In 2007, Dr. Jeff Lehmkuhler and I coordinated a series of fall workshops that focused on pre-conditioning feeder calves to show producers they could add value to their feeder calves. Pre-conditioned calves were demanding premiums due to the documented lower costs and improved efficiency they typically had from improved health. The keynote speaker for this workshop was Roy Burris, University of Kentucky Beef Specialist, who presented information on their statewide pre-conditioning program and sale procedure called CPH-45. An outcome of this series of workshops was Rod Nilsestuen, Wisconsin Secretary of Agriculture, wanted a Wisconsin program similar to Kentucky's to be developed. Dr. Lehmkuhler and I were approached by Jeff Swenson, Wisconsin Department of Agriculture Livestock Marketing Specialist, to assist in the development of the Wisconsin Program. We, along with Steve Huntzicker, La Crosse County Ag Agent, worked with the Western Wisconsin Beef Producers Cooperative, an area feeder calf group that held feeder sales at the Equity Sale Barn at Sparta, to develop the Department of Agriculture's BADGER-VAC 45 program. I led efforts to coordinate nine meetings in the region to promote the BADGER-VAC 45 program, and Beef Quality Assurance Certify potential consignors during the summer and early fall of 2008. A sale was held in November of 2008 where 321 BADGER-VAC 45 preconditioned feeder calves were sold. The calves sold at prices equal to pre-conditioned calves sold during that same week at special sales in the upper Midwest.

The BADGER-VAC 45 program never gained enough interest to hold a second sale. Following are some of the reasons that the project did not continue.

- Too many potential consignors demanded the program be what they were already doing rather than they implement a set of practices with a documented successful track record.

- Buyers indicated they could only help support the program to help it get going for so long. Sales like this need at least 700 head of feeder calves to keep buyers interested or they will go to places where those feeder calf numbers are.
- The Department of Agriculture's goals and objectives changed and that reduced the support they were providing to groups interested in doing sales.

In spite of the fact the BADGER-VAC 45 program failed, there were some positive outcomes from all of the efforts. The Western Wisconsin Beef Producers had an honor system pre-conditioning program called the Purple Tag program that was dwindling in interest and use. The group decided to revitalize the Purple Tag program. I led the process of updating their documentation form to make it easier to use and follow, and add additional accountability to the management practices (**Exhibit 1**). I also worked with the group to hold late summer beef education workshops with at least one topic addressing pre-conditioning and how to promote your calves at sale time, including potentially using the purple tag program. Direct communication with the sale barn manager of the Equity Sale barn in Sparta indicated that interest and use of the Purple Tag program continues to grow, and that the efforts that all of us have invested in revitalizing the purple tag and promoting pre-conditioning have been worth it.

Surveys conducted at the annual Cattle Feeders Workshops indicated that many producers were uncertain as to what their cost of production was. This was especially true for overhead costs more so than direct costs. One of the hurdles identified was lack of ease, and lack of tools to help producers calculate production costs. I cooperated initially with Dr. Lehmkuhler to update an older spreadsheet that UW had on dairy steer enterprise budgets. This led to cooperating with Dr. Amy Radunz, UW Extension Beef specialist, Dr. Brenda Boetel and Dr. Greg Hadley, UW Extension Ag Economists, to refine and expand the number of spreadsheet tools for beef producers to evaluate their costs. The list of spreadsheet tools developed includes: Feedlot Enterprise Budget (**Exhibit 2**), Feedlot Closeout Worksheet, Stocker Enterprise Budget and a Yardage Calculator. These spreadsheets have been promoted and demonstrated at the Cattle Feeders Series Workshops. A nine month later follow up survey of participants (n=77 returned) from the 2009 cattle feeders workshops indicated 30 percent of respondents were able to use the information presented to reduce their cost of production between 5 and 10 percent, eight percent of respondents did some follow up work with their county ag agents, and 31 percent of respondents calculated their overhead costs with 52 percent of those using one of the spreadsheets that we developed (**Exhibit 3**). In 2012, a follow up survey (**n=49 returned**) conducted five months after the workshops provided the following information, 43 percent of respondents indicated they had used at least one of the UW Extension Beef Spreadsheet tools, 32 percent of respondents said they made changes that improved profitability.

To further build on cost of production information, in 2011, grant funding was received to conduct a survey of dairy steer finishers to calculate their overhead costs. Dr. Radunz, Dr. Boetel, Adam Hady, UW Extension Ag Agent in Richland County and I serve as the leaders of this project. Surveys were conducted by UW Extension Ag Agents during the winter and early spring of 2011 and 2012. The project is not completed yet. Getting complete information from surveyed participants, turnover in the beef specialist position and turnover in student workers hired to help summarize the project has hindered the process of completing this project. At this time, the UW Extension Livestock Economist is working on the data.

I have been one of the co-coordinators of the Cattle Feeders series that is held annually at 7 and 10 locations around the state. The UW Extension Beef Specialist and the UW Extension Livestock Economist have been co-coordinators of the series. For the past five years, we have been able to secure grant funding from the USDA Risk Management Agency to assist with covering the costs of this workshop series. The grant funds have also provided the opportunity to identify and bring in out-of-state speakers with specialized expertise to address topics. Twice in the past five years I presented information on managing implant programs for feedlot cattle. A year later follow up survey of participants (n=85) from the 2008 cattle feeders program indicated that implant management was the most changed management practice based on what they learned with 8 percent of respondents making changes. Feedback received directly from one of the participants after the 2011 cattle feeders series included the following quote, "I wish I would have talked to you about implants 20 years ago, I have not been using them to the best advantage I could have. I am going to change my timing and products that I use for implants". There were additional comments regarding changing the timing of their existing implant programs. Workshop surveys from 2011 indicated that twenty percent of respondents indicated they were going to make changes to their implant programs based on the information presented and forty percent indicated they were going to take the material presented and use it to evaluate their current implant program.

I have worked with the Monroe County Land Conservation Technicians on four barnyard projects to help farmers in the county improve their livestock facilities and water quality. My role is to develop the floor plan of the new facility to make it livestock and farmer friendly, and the Land Conservation Technicians plan the shaping of the ground around it to keep the water clean. One example of a successful project is a farm where they used to over winter their cattle between a steep hillside on the northwest side and a creek on the southeast side. The location was convenient to the rest of the farm buildings, and provided wind shelter for the cattle, but was a water quality problem. I worked with the farm to identify numbers and groups of cattle they had, and developed a floor plan for a covered barnyard with a scrape alley, drive by feeding with bedded resting area behind the scrape alley, and a cattle working area with an alley and chute . The design had a lot of flexibility and swinging gates to make moving and sorting the cattle easy. The farmers who built it really like how well it works for the cows and how clean everything can be kept. The Land Conservation Technicians send other farmers to visit the facility when they are in the process looking at options for their farms. A very common comment after seeing the facility is, "I want one just like it!"

I was asked by Zen Miller, Outagamie County Ag Agent, to write an article on dairy steers for one of the Dairy Team's monthly articles in the Wisconsin Agriculturist in 2011. I wrote an article on the importance of evaluating the cost of production of dairy steer enterprises. The article was received better than anyone could imagine it would have been. It was posted on Drover's Journal's website and was published in Hoard's Dairyman Magazine as well. As a follow up to this article, I along with Dr. Radunz, asked Fran O'Leary if there was interest in more beef related articles from UW Extension in the Wisconsin Agriculturist. This led to nine beef related articles provided by agents in 2012, and increased to twelve articles scheduled for 2013.

I continue to program in the Beef Production area and keep an eye and ear open to identify needs by listening and observing what people in the different parts of the industry are talking and asking about, and then trying to find the information to help them make informed decisions. Hopefully we will be able to get another outstanding UW Extension Beef Specialist to help take the lead in this area. One of the things I

would like to do when the new specialist gets on board is see if there are any changes we might want to implement in the cattle feeders workshops.

Agronomic Crop Production and Management

Situation Statement: The past five years have been very volatile in terms of profits for grain producers. Early in that time period, grain prices were below cost of production for many farmers. In the past few years grain prices have risen to record highs. Input prices have risen along with sales pressure from input dealers to increase the number of crop inputs including things like foliar fungicides. During this time frame, fuel prices also rose significantly which sparked an interest in home grown biodiesel.

Response and outcomes: The increase in fuel costs in late 2006 and into 2007 led to interest from farmers in growing and producing their own biodiesel fuel. There was a fair amount of information being promoted in the production of biodiesel, but much of it appeared "too good to be true". In response to this interest, Ag Agents in Buffalo, La Crosse, Chippewa, Vernon, Trempealeau, Jackson and Monroe counties put a plan in action to do some educational programming and investigate the feasibility of producing biodiesel on the farm. The initial response was a series of workshops held around the region where a guest speaker from Iowa State University that worked in the commercial production of biodiesel presented information on what was involved in producing quality biodiesel.

Building on these workshops, variety trials were conducted to evaluate oil content of soybeans, and the feasibility of growing sunflowers and canola in west central Wisconsin. My primary role was providing leadership to the crop trials part of the project. A cooperating farmer was identified that the group worked with to put a system in place on their farm to document the cost of getting set up to safely produce biodiesel. This project encountered a few problems, primarily with getting building codes from the Department of Commerce, and getting funding to do the final analysis of the quality of the biodiesel fuel.

We did learn that using good soybean varieties can result in about 100 gallons of oil per acre. We also learned It is easier to extract oil from sunflowers and canola, with equipment available for on farm pressing, than from soybeans. We learned that growing sunflowers in west central Wisconsin is risky, and not cheap. Financial analysis of the project showed that with 2009 crop input prices and costs incurred for the system, biodiesel could be produced for about \$3.15 per gallon on the cooperators farm. The results from this project were presented at the Wisconsin Crop Management conference in 2009, and have been presented at area field days and crop updates. Once producers see what is involved in producing their own biodiesel, they make the decision not to take on the project.

Foliar fungicide use on agronomic crops began being promoted for general use after the discovery of soybean rust in the United States. The fungicides were first promoted for general use on soybeans, then corn and most recently alfalfa. There was very little third party, unbiased trial data to support the use of foliar fungicides when they have first been promoted for each crop. I have been involved with conducting trials in cooperation with the UW Extension Field Crops Plant Pathologist and UW Extension IPM Program Coordinator since 2005. To date, I have organized and coordinated 26 small plot replicated corn grain and silage trials in Monroe, La Crosse, Trempealeau, Pepin, and Buffalo Counties, and in cooperation with the University of Minnesota Extension Crops Educators in Southeast Minnesota for the corn silage plots.

The trials have evaluated different fungicides being promoted, including the newest formulations and products as they become available. Application timings at R-1 maturity stage were initially evaluated, then V-5 maturity as the companies began promoting that timing instead of R-1. None of the trials that I have coordinated in grain and silage have shown a statistically significant or an economic benefit to the use of foliar fungicide. The trial results have been used at crop management update workshops in the region, and field days have been held at the trial locations for producers to see the plots. The results have also been used by the UW Extension Plant Pathologist at State and National conferences.

Steve Huntzicker presented the results from our area plots at the Corn Conference held in early 2009 near La Crosse. The focus of the presentation was the question "Do we need foliar fungicides in corn production?" Using Turning Point technology, an interactive tool for gathering audience feedback, producers and professionals (n=37) in attendance were surveyed throughout the presentation. A pre-survey poll indicated 37 percent of participants answered yes to the question of whether or not foliar fungicides were necessary in corn. Post survey results from the presentation, showed only 21 percent of the participants still felt foliar fungicides were necessary in corn production. Post survey results also indicated 80 percent of the participants said they were not planning to use foliar fungicides in corn in 2009. In addition to the workshop questionnaire data according to area dealers, in 2008 approximately 70,000 acres of corn were sprayed with foliar fungicide in the western Wisconsin counties mentioned above based on information gathered from dealers. In 2009, the corn acreage that was sprayed with fungicide was reduced to about 12,000 acres. The UW trial results provided information that corn growers used to help them decide if they should spray foliar fungicide on their corn crop or not.

Survey data collected from participants at area crops meetings indicate that farmers value the fact that we conduct trials in the area, and they use the information we are able to provide them. I have continued to conduct these trials because new products and different applications timings are being promoted, and farmers see benefit in the unbiased information UW Extension has provided them.

Headline fungicide received a label for use on alfalfa late in 2011. Similar to when it was approved for corn, there was no third party unbiased data on the effectiveness of Headline on alfalfa. In the fall of 2011, I was asked by Extension counterparts in Southeast Minnesota if I and UW Extension would be interested in working together to conduct trials to evaluate Headline use on alfalfa. Paul Esker, UW Extension Plant Pathologist, Bryan Jensen, UW Extension IPM Program Coordinator, and I joined forces with Fritz Breitenbach and Lisa Behnken, University of Minnesota Extension field staff in southeastern Minnesota, to conduct trials in three locations, to evaluate Headline use on alfalfa. Results from those trials were inconsistent. The results did get the attention of Dr. Debbie Samec, USDA- ARS Plant Pathologist at University of Minnesota, and Greg Blonde UW Extension Ag Agent in Waupaca County, and the project was expanded in 2012 to five locations with uniform and expanded protocols.

The results from the trials in 2012 were still very inconsistent. Dr. Samec took the lead in the plant pathology aspects of the trials, and I ended up taking the lead in evaluating the agronomy aspects of the project. Greg Blonde and I worked with Drs. Victor Cabrera and Randy Shaver to develop a process to help calculate a return on investment for evaluating the cost of applying the fungicide with the value. The results from the trials were presented by me at the Wisconsin Crop Management Conference, and by Dr. Samec at the Midwest Forage Council Conference in Wisconsin Dells. An article summarizing the trials in 2012 is close to

be completed at this time (**Exhibit 4**). Dr. Damon Smith, UW Extension Plant Pathologist, has now joined the project, and at this time plans are underway to continue this project in 2013. There has been a tremendous amount of interest from farmers and crop consultants in the results from this project, but at this time it is too early to know how widely the information will be used for making decisions.

The Agriculture Agents who had expertise in agronomy in the Western District were asked to have an agronomy related exhibit at the 2010 Farm Technology Days in Pierce County. Jerry Clark, Extension Educator in Chippewa County, Bryan Jensen, and I took the leadership roles in designing and making the display happen. We planned a series of soybean plots to provide visitors a chance to see and walk through that demonstrated row spacing, plant population, and herbicide timing. The plots were supplemented by posters and handout materials that provided information on the management practices being showcased. The demonstration area had a steady stream of visitors during the show. We were awarded the Don Peterson Technology Transfer Award for the display.

I am the lead coordinator for agronomy workshops and field days in the region including La Crosse, Buffalo, Vernon, Trempealeau, Jackson and Monroe Counties. As a group, we try to jointly hold a series of summer field days in several of the counties and a one day, two location winter crops day. In addition to having state specialists as speakers, I also prepare a local update presentation that provides information on area projects, trials, and other topics of local interest. At the winter crops day held in February of 2012, we conducted a survey of participants. One of the questions asked was a follow up question for people who had attended our agronomy programs in the past. It asked participants (n=23 respondents) how they have used the information presented at previous workshops. Forty-eight percent of the respondents indicated that they had made changes in their management based on information they had received from UW Extension at our Agronomy workshops. Fifty-two percent indicated that they had used the information to validate that they were making the correct decisions, and did not need to make changes.

During the past five years I have had the opportunity to work with the High School Agriculture Teacher in Tomah and Cashton and a Science Teacher at Cashton and seven of their students to provide the students with hands on opportunities to be partners with applied research project by having them partner with me on agronomy trials and insect scouting projects during the summer. The students work with me and provide some help to conduct the projects. They help lay out the projects and help with data collection to see what is involved in applied research projects. They use the projects for science competitions for FFA and compete at science fairs with the projects. In the last five years some of the students have placed 1st, 2nd, 3rd, and 5th in area and state competitions and have been awarded expense paid trips to national science fairs and competitions with their projects.

I have some new agronomy projects planned for 2013. One of these projects is working with a cooperating farmer near Tomah that approached me about conducting some cover crop trials on his farm. He has been utilizing some cover crops over the past couple of years and is interested in taking a closer look at what kind of benefits he may be getting from their use. I have contacted Dr. Matt Ruark, UW Extension Soil Scientist, and we have developed a plan with the farmer to do some short and long term evaluation of cover crop influence on soil properties in this farm's cropping program.

Another project that I will be working with cooperating farmers on in 2013 are nitrogen rate trials that also evaluate Adapt-N and Crop Canopy Sensing Technology as methods for determining nitrogen fertilizer side dressing rates. These projects are a next step to the Maximum Return to Nitrogen Rate (MRTN) trials that I was involved with about six years ago with Dr. Carrie Laboski, UW Extension Soil Scientist. Those plots were very useful at both gathering data for the Wisconsin data pool that nitrogen rates are determined from, and helping area farmers understand and adopt the MRTN nitrogen rates. There is a lot of interest among growers in these new methods, but no data on how accurate they are under Wisconsin soil and climate conditions.

I have found that resources and time limit the number of projects that I can work on in the agronomy area. There are some additional crop inputs, which lack unbiased data, I think it would be worthwhile evaluating, and I have been asked questions about conducting some different tillage comparisons that would be interesting to do on different soil types in the region.

Small Scale Fresh Market Produce and Bedding Plant Production

Situation Statement: Amish farmers in the area continue to grow and sell fresh market produce and bedding plants as a source of income. The primary method they sell is still through an auction in the Cashton area, and that has appeared to reach its stable size. Within the past few years more of the Amish farmers have begun to sell through Community Supported Agriculture organizations, contracted with Organic Valley, or work with a produce broker. In addition to the Amish growers, there are a growing number of non-Amish people who are beginning to grow fresh market produce as a source of supplemental income. Both of these groups rely on UW Extension information and resources to help manage their crops.

Response and outcomes: Vine crops are a big part of the fresh market grower's crops in the region. One of the key pests to vine crops is cucumber beetles, which spread bacterial wilt as they move from plant to plant feeding. Many of the growers have typically used dusts or foliar sprays to control the cucumber beetle. In 2007, on farm visits with Dr. Russ Groves, UW Extension Vegetable Crop Entomologist, we observed that the growers were creating conditions that killed most of their pollinators with the methods they were using to control cucumber beetles. They were not utilizing the new systemic insecticides. I worked with Dr. Groves to implement on-farm demonstrations in 2008 and 2009 to show growers how the new materials and some improved management practices could be used to get close to season long cucumber beetle control without the use of foliar sprays. We demonstrated the use of floating row cover as early season physical barriers that could be used under both organic and conventional practices. We also demonstrated the application of the systemic insecticides at transplanting to provide 40 days of protection against cucumber beetles.

In 2009, Dr. Groves and I developed a protocol for the growers to minimize their handling of the insecticides and maximize the length of time they would have protection for. The protocol was for the growers to plant the vine crops and cover them with floating row cover until they began flowering, or the plants got too big for the row cover. A few days prior to removing the row cover, the growers would apply the systemic insecticide with an injector through their drip tape irrigation. This would then provide them with 40 to 50 days of protection against cucumber beetles. This protocol also significantly reduced risk to the farmers by minimizing their handling and exposure of the insecticide. There has been close to 100% adoption of the use of the new systemic insecticides via one protocol or another. We also worked with a non-Amish farmer to conduct efficacy trials of different systemic insecticide compounds in the farmers pumpkin patch (**Exhibit 5**).

In 2011, I was asked to be a team member in a Specialty Crop Block Grant project submitted by Dr. Amanda Gevens, UW Extension Vegetable Crop Pathologist, to conduct trials to develop best management practices for growing tomatoes in high tunnel production systems. The grant was awarded and we were in the process of working with one of the tomato growers that we had been working with in the area to conduct some of the trials in his structures. Unfortunately, the grower died from a farm machinery accident in midsummer last year. I am still one of the team members on this project, and at this time we are re-grouping to be able to complete the project. The grower's step- daughter is now running the operation, and I have been helping her learn about tomato production.

Farm Women Outreach

Situation Statement: I worked with Joy Kirkpatrick to offer a Heart of the Farm workshop. The interest generated from that initial program indicated farm women were an audience with an interest in better access to UW Extensions Agricultural Resources.

Response and Outcomes: Building on the interest shown at the first local Heart of the Farm workshop led to an annual Heart of the Farm workshop and the implementation of a steering committee to identify topics and help develop the agenda for the annual Heart of the Farm workshops. Farm women programming has expanded to include Annies Project series workshops, Quikbook Workshops, and a Grant Writing workshop.

Two years ago the steering committee identified a need for opportunities to improve their computer skills. Joy Kirkpatrick and I developed an Annies Project series curriculum where we taught different sessions on improving computer skills. I developed and taught sessions on computer security and safety, how to set up spreadsheets, how to handle image files, setting up e-mail accounts and web browser operation. Other sessions including farm records keeping programs, online banking and word processing were also part of the series. The instructors learned the wide range in computer skills that the participants came with. We had participants that had rarely turned on a computer before in the class. Feedback was very positive. One participant indicated that as a result of the class they had purchased a computer for home and farm use, and was learning how to keep the farm records on it. She was also able to more easily keep up with her grown children and grandchildren via e-mail.

One of the best outcomes from the farm women programming has been connecting with farm families and do one-on-one work with them. I have helped three families with farm financial analysis and worked with another family to improve ventilation in their livestock barns.

I plan to continue to identify needs and offer educational opportunities for the farm women audience.

These eight pages summarize highlights from the primary areas that I have programmed in over the past five years.