

# PROFESSIONAL BRIEF

**Mark Hagedorn**  
**Agriculture Agent**  
**UW-Extension Eau Claire County**

## I. PERSONAL INFORMATION

Name: Mark A. Hagedorn  
Formal Education: M.S. - Iowa State University, Animal Science, 2007  
B.S. - Northwest Missouri State University, Dairy Science, 1977  
Extension Employment: Agriculture Agent, University of Wisconsin Extension  
Eau Claire County, July 2013 - present  
Agriculture Educator, University of Wisconsin Extension  
Brown County, October 2006 - July 2013  
Extension Rank: Associate Professor: July 2012 - present  
Assistant Professor: October 2010 - June 2012  
Instructor: November 2007 - September 2010  
Extension Associate: October 2006 - October 2007  
Current Position Description: Agriculture Agent ó Eau Claire County

## II. PROFESSIONAL CONTRIBUTIONS

### The University

#### University Service:

	<u>Activity</u>	<u>Year(s)</u>
UW-Extension (UWEX)		
Joint Council of Extension Professionals (JCEP)	President	2015-2016
Joint Council of Extension Professionals (JCEP)	President Elect	2014-2015
UWEX Department of Agriculture and Life Sciences (DALs)		
Standard, Rank and Promotion Committee	Secretary	2016-present
Standard, Rank and Promotion Committee	Member	2015-present
Epsilon Sigma Phi (ESP)		
ESP	President	2016-present
ESP Nominating Committee	Member	2009-present
ESP	Member	2007-present
Four-State Extension Management Conference Planning Committee	Member	2007-present
UWEX Agriculture and Natural Resources Education (ANRE) Program Area		
ANRE Conference Planning Committee	Member	2016-present
Dairy Team	Co-leader	2012-present
Dairy Team	Member	2006-present
Dairy Replacements Workgroup	Member	2006-present
Dairy Workers Training Workgroup	Member	2006-2014
Team Forage	Member	2006-present
FARM Team	Member	2006-present
Management Assessment Center (MAC)	Member	2014-present

### The Profession

#### Organizations:

National Association of County Agricultural Agents (NACAA)	Member	2006-present
Wisconsin Association of County Agricultural Agents (WACAA)	Member	2006-present
Midwest Forage Association (MFA)	Member	2006-present
Professional Dairy Producers of Wisconsin (PDPW)	Member	2006-present
American Registry of Professional Animal Scientists (ARPAS)	Member	1994-present

### The Community

#### Organizations:

Chippewa Valley Technical College Farm Business Program	Advisory	2013-present
Chippewa Valley Forage Council	Advisory/Sec.	2013-present
Eau Claire County Farm Bureau	Advisory	2013-present
Eau Claire County Dairy Promotion Committee	Advisory	2013-present
Eau Claire Chamber of Commerce Farm Advisory Committee	Member	2013-present
Northern Wisconsin Beef Producers Association	Advisory	2013-present

**III. MAJOR PROGRAM – Dairy Farm and Employee Safety**

**Situation:**

Agriculture is the most hazardous industry in the United States, especially for inexperienced youth and Hispanic workers (National Safety Council, *Injury Facts*, 2009). This major concern in the agricultural community was confirmed in multiple needs assessments this agent has conducted.

Several deaths have been attributed to skid steer and dairy farm related accidents in the state of Wisconsin. In 2009, a Hispanic dairy worker drowned while operating a skid steer. The mishap occurred while pushing manure into a manure storage lagoon, prompting an inspection by the Occupational Safety and Health Administration (OSHA). OSHA then mandated the implementation of a statewide Local Emphasis Program (LEP) stating that Wisconsin dairy farm compliance inspections would start in 2012. These Wisconsin dairy farm inspections focused on ensuring the safety of Spanish-speaking and youth workers. This resulted in an urgent need for resources and training to help dairy producers identify safety risks and develop an on-farm OSHA-compliant safety and health program.

***Objectives:***

1. Participants will identify and increase knowledge of pre-inspecting skid steers.
2. Participants will demonstrate safe operating and handling skills of skid steers.
3. Participants will demonstrate the ability to identify key maintenance points and conduct maintenance of a skid steer.

**Response:**

There was no formal skid steer safety program available in Wisconsin. This agent wrote and developed a bilingual skid steer safety training program. Materials developed by this agent for the module included: self-playing voice-over presentation, numerous fact sheets, safety checklists, and program evaluation materials. This program was piloted locally by this agent for 12 individuals. The training included 45 minutes of classroom instruction, followed by an outside skills course for trainees to utilize the skills just learned. Based on feedback received, this agent made changes to improve the quality and impact of this module. This agent received requests to teach an additional twelve training sessions in the capacity of classroom presenter and/or skills course supervisor for 234 individuals across the state. A majority of the participants were Spanish-speaking. Evaluations from all thirteen trainings (n=246) were positive. Some reflective comments from participants were:

- *“UW-Extension does great training. This was the first skid steer training I’ve seen offered.”*
- *A more experienced operator commented, “It was a good refresher on safety!”*

As a result of this program, twelve UWEX Agents in the state have held training sessions for an additional 168 people. All twelve of these sessions were taught in English and Spanish. Since the official release of the Dairy Workers Training-Skid Steer Skills Module VI at the 2010 World Dairy Expo, there have been 78 copies of the instructional CD/DVD and 23 copies of the bilingual manual sold via the Babcock Center and an additional 145 copies sold through the UWEX Learning Store. This agent developed a “Skid Steer Handling Skills” fact sheet that is available to the public via printed copy, the UWEX Learning Store, or the Eau Claire County UW-Extension website.

Occupational Safety and Health Administration (OSHA) and National Farm Medicine Center (NFMC) have both been supportive of Module VI. Dr. Matthew Keifer, M.D. Senior Research Scientist for NFMC, and Tom Drendel, Agricultural Safety Specialist for the NFMC, were both in attendance at a training session this agent delivered in Thorp, WI. Dr. Keifer’s evaluation of the training session follows:

*“It was a pleasure to work with Mark. He was attentive to the audience needs. He was responsive to the questions that came up and he had a quiet, direct and effective delivery of the material. He clearly knew the content well and was able to explain the slides to those who did not understand fully. As a university professor for many years, I am very sensitive to and appreciative of good quality teaching capability. I found Mark’s to be highly developed. He is effective.”*

**MAJOR PROGRAM – Dairy Farm and Employee Safety (continued)**

Prior to this agent's work, there were limited resources to help train and educate bilingual employees as well as no formal curriculum. The OSHA Dairy Farm LEP applies to around 9,500 dairy cow and milk producers licensed by the Wisconsin Department of Agriculture, Trade and Consumer Protection and 150 Concentrated Animal Feeding Operations (CAFO) under Department of Natural Resources (DNR) water protection permits. Of the estimated 12,551 immigrant dairy workers – 40% of Wisconsin's dairy farm workforce – 89% are from Mexico (2009 UW-Madison Program on Agricultural Technology Studies). This agent and UWEX Agricultural Safety and Health Specialist Cheryl Skjolaas trained educational and agency partners, conducted dairy farm safety reviews, and built on existing youth and bilingual Dairy Worker Safety Training Programs.

Trainings on animal handling and skid steer safety were pilot tested during a comprehensive Dairy Farm Safety Short Course in English and Spanish with UW-River Falls. Educational programs and resources were developed to help producers and industry representatives learn about OSHA compliance and on-farm safety: <http://fyi.uwex.edu/agsafety>

This agent and Skjolaas shared this work with regional colleagues through their service on the North Central Education/Extension Research Activity Committee (NCERA 197), currently focusing on confined spaces such as manure storage and handling systems. Wisconsin Cooperative Extension professional development training on safe work practices for professional nutrient applicators and employees connects back to improving safety in confined spaces. Work continues with the Professional Nutrient Applicators Association of Wisconsin (PNAAW) on confined space and road safety issues. This agent provided leadership to a PNAAW meeting reaching farm machinery operators, manure tanker and tire manufacturers, government representatives, Extension educators and custom nutrient applicators from Illinois, Iowa, Minnesota, Ohio, and Wisconsin.

Employee safety and training are of great concern to OSHA. Because of this concern, this agent and UWEX Agricultural Safety and Health Specialist Cheryl Skjolaas developed the presentation "OSHA Local Emphasis Program (LEP) Dairy Dozen." This presentation was given at the DNR/UWEX CAFO permit holder meetings for approximately 350 farm owners, consultants, service providers and educators in northeast and northwest Wisconsin. As a result of these presentations, dairy producers requested this agent to conduct a farm safety risk assessment. Five farms housing in excess of 13,100 cows and employing 167 workers were reviewed in an effort to help owners and managers get a better grasp on what OSHA would be interested in assessing if an unannounced farm safety audit were to occur. The primary issues of concern that came to light were manure lagoon fencing, reception pit/grain bin confined space protocols, and employee training/injury/illness monitoring. As part of the farms' first steps to become OSHA compliant, all five farms purchased Module VI developed by this agent, and implemented the training module as part of their employee safety training.

**Impact:**

Building regional capacity to make OSHA rules meaningful and practical for dairy farms, Spanish-speaking workers and youth was the objective of all parties involved. Two OSHA area directors, four compliance safety officers and eight compliance inspectors found their on-farm training valuable as they better understand modern dairy facilities, operations, work tasks, safe handling of dairy cattle and what to consider a safe versus hazardous work situation. Most had never been on or had limited exposure to dairy farms. The Dairy Worker Roundtable III (a collaboration organized by OSHA, Skjolaas and this agent) informed educational partners, insurance industry and government agency staff, safety and design consultants, dairy producers and professionals of the pending development and implementation of the statewide LEP. Safety reviews conducted by this agent and others on 36 dairy farms covered around 400 workers handling 40,000 cows. Annual CAFO update meetings taught in part by this agent reached 350 producers and industry representatives.

Through the pilot bilingual Dairy Farm Safety Short Course, nine producers with 75 workers learned how to create a safe workplace, properly train workers and meet OSHA requirements. Ten counties held safety programs training more than 280 dairy workers. Spanish-speaking workers learned proper cattle handling and skid steer safety. Proper cattle handling decreases injury to both cattle and dairy workers, decreases dairy cow stress, and increases milk production. In 2012, this agent taught 70 high school agricultural education and technical college instructors who learned OSHA rules for training youth. Safe Operation of Tractor and Machinery training certified 421 youth working on their family farm or dairy farms. The Liberty Mutual Research Institute for Safety estimates that three dollars to six dollars are saved for each dollar invested in safety.

**III. MAJOR PROGRAM – Dairy Farm and Employee Safety (continued)**

The success of the farm safety risk assessment walk-throughs conducted in part by this agent prompted the Four-State Dairy Extension Dairy Group to request a presentation summarizing the results of these on-farm safety assessments. This agent developed a presentation for 15 state dairy extension specialists from Wisconsin, Illinois, Iowa and Minnesota highlighting observations and experiences gathered from the combined farm safety visits at their annual meeting.

While focus has been on the inspection aspect of OSHA compliance, the greater value is potential growth of safety and health programs on dairy farms and benefits to the business. Workplaces that establish safety and health management systems can reduce their injury and illness costs by 20 to 40 percent: <http://www.osha.gov/Publications/safety-health-addvalue.html>

This agent has authored three articles for the UWEX Dairy Workers/El Compañero newsletter which is distributed to 600 farms and 1,300 employees in Wisconsin. The bilingual management and employee safety newsletter delivers information to dairy farm employees through their primary language on a bi-monthly basis.

**Teaching Methods Used**

Workshops, Seminars, and Classes

<u>Event</u>	<u>Subject Matter Taught</u>	<u>Date</u>
1. 2012 Annual CAFO Update Green Bay, WI	OSHA, what we know now compared to a year ago	February 16, 2012
2. Best Practices for Dairy Farm Safety Luxemburg, WI	Hazard Identification and Risk Assessment (Train the Trainer)	December 10, 2012
3. Best Practices for Dairy Farm Safety Green Bay, WI	Confined Space Training and Permitting	December 18, 2012
4. Best Practices for Dairy Farm Safety Baraboo, WI	Tractor and Farm Machinery Safety (Train the Trainer)	January 30, 2013
5. Best Practices for Dairy Farm Safety Appleton, WI	Animal and Farm Structure Safety (Train the Trainer)	February 15, 2013
6. 2013 Annual CAFO Update Green Bay, WI and Rice Lake, WI	OSHA regulations and inspection findings	February 13, 2013
7. 2014 Annual CAFO Update Rice Lake, WI	OSHA Update/Handling Compromised Animals	January 16, 2014
8. Harvest Solutions Clinic Arcadia, WI	IOH/DOT Laws Update	August 12, 2015
9. Agricultural Safety Connection Stevens Point, WI	Animal Handling	January 7, 2016

*Objectives:*

1. Participants will identify and increase knowledge of pre-inspecting skid steers.  
- Participants demonstrated an 87% increase in knowledge of pre-inspecting skid steers.
2. Participants will demonstrate safe operating and handling skills of skid steers.  
- Participants demonstrated a 72% increase in the ability to operate and handle a skid steer.
3. Participants will demonstrate the ability to identify key maintenance points and conduct maintenance of a skid steer.  
- Participants demonstrated a 190% increase in the ability to identify key maintenance points and conduct maintenance of a skid steer.

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### III. MAJOR PROGRAM – Dairy Farm and Employee Safety (continued)

#### Print Media

- Releases and submissions to eight area newspapers including the Eau Claire Leader Telegram
- Releases and submissions to four state agricultural newspapers including Agri-View, Country Today, and Wisconsin State Farmer

#### Newsletters

- Eau Claire County e-chord newsletter
- Quarterly submissions and updates to Dunn, Clark and Barron County newsletters

#### Individual Consultations

- Calls, e-mails, office and site visits with producers, agriculture service providers and clientele from surrounding counties

#### Television Programming

- Regular appearances ó WEAU-TV 13 (NBC)
- Regular appearances ó WQOW-TV 18 (ABC)

#### Radio Programming

- Regular updates on WAXX Radio in Eau Claire
- Occasional updates on Wisconsin Public Radio (WPR) in Eau Claire

#### Learning Modules/DVDs (Bilingual)

- Dairy Worker Training Module VI, Handling Skills, Hagedorn/Miller/Opatik/Bendixen, 2009 (update pending 2017)
- Center For Dairy Farm Safety UWRF, Best Practices for Farm Safety, Smith/Nthole/Skjolaas/Schiebinger/Hagedorn, 2012
- Safe Operation of Skid Steer Loaders, Duley/Knapp/Hagedorn, 2012

#### Educational Articles, Fact Sheets, Papers and Published Stories

- öSkid steers: Don't underestimate need for safetyö ó Hagedorn/Skjolaas, Agri-View, November 24, 2016
- öSkid Steer Handling Skillsö ó Hagedorn, Fact Sheet
- ö2015-2016 Quick Glance at the OSHA Dairy Farm Local Emphasis Program ö Skjolaas/Hagedorn, Fact Sheet

#### Demonstration/Training

- |   |   |                    |
|---|---|--------------------|
| - Pagels Ponderosa<br>Kewaunee, WI  | Employee Training (Bilingual)                                       | March 26, 2012     |
| - Dairy Dreams<br>Casco, WI   | Employee Training (Bilingual)                                       | April 25, 2012     |
| - OSHA Farm Walkthrough<br>Wrightstown, WI  | Job Hazard Analysis and Site Assessment                             | August 27, 2012    |
| - Opitz Dairy<br>Saukville, WI  | Employee Training (Bilingual)                                       | August 28, 2012    |
| - OSHA Farm Walkthrough<br>Denmark, WI  | Job Hazard Analysis and Site Assessment                             | February 19, 2013  |
| - Skid Steer Safety<br>Juneau, WI   | Train the Trainer Workshop (Bilingual)                              | June 30, 2014      |
| - Oechsner Farm<br>Brownsville, WI  | Employee Training (Bilingual)<br>Skid Steer and Job Hazard Analysis | July 1, 2014       |
| - Pine Breeze Dairy<br>Pine River, WI   | Employee Training (Bilingual)<br>Skid Steer and Job Hazard Analysis | June 24, 2015      |
| - Skid Steer Operation Training<br>Chippewa Falls, Arcadia, Flack River Falls, WI | Basic Skid Steer Safety Training                                    | July 2, 7, 8, 2015 |
| - American Family Insurance   | Train the Trainer   | February 1, 2016   |

#### Multiplier Contacts

- Extension Agents, Technical College Instructors, Ag Broadcasters, Insurance Underwriters, and OSHA Compliance Officers

**IV. MAJOR RESEARCH AREA**

**Situation:**

The cost of raising dairy calves and replacement heifers is a very notable expense associated with Wisconsin dairy farms. Calculating the costs associated with raising dairy calves and heifers is an essential part of dairy business management. The outdated 2007 Intuitive Cost of Production Analysis (ICPA) project was determined to be frequently referenced and utilized by many producers, custom heifer growers and agri-business professionals. To update the data, this agent served as one of the primary investigators of the 2013 ICPA project and provided leadership to conduct the field survey and the subsequent update that occurred in 2015 to answer the following questions:

1. What are the economic costs associated with raising a dairy replacement on today's dairy farms and custom calf/heifer raising operations?
2. What are the labor costs and labor efficiencies associated with raising a dairy replacement on today's dairy farms and custom calf/heifer raising operations?

The ICPA Survey White Paper contains materials, methodology and statistical analysis from the 2013 study in conjunction with the 2015 version 4 update containing feed pricing and heifer calf cost adjustments.

**Results:**

A total of N=36 herds representing the breadth of Wisconsin's dairy replacement herds were evaluated by 13 county agriculture agents. This agent completed ICPA analyses on five Brown County operations (three custom heifer raisers, one dairy free-stall operator and one dairy tie-stall operator) as a part of the survey. When all 36 operations were analyzed, the average cost to raise a dairy replacement from birth to calving (or in the case of the custom heifer grower, the time the dairy replacement was returned to the dairy producer) increased from \$2,149 (\$3.31 per head per day) in 2007 to \$2,472 (\$3.93 per head per day) in 2013 to \$2,432 (\$3.86 per head per day) in 2015.

**Evaluation:**

One year later in 2014, a follow-up survey by this agent was mailed to the 36 participants of the study to determine the impact on their respective operations based on their participation in the study. Based on the individuals' participation in the study, respondents (n=23) indicated:

- 83 percent increased their knowledge with regards to the cost of raising dairy replacements on their operation
- 100 percent indicated they calculated the cost with regards to raising dairy replacements on their operation

Fifty-two percent of the respondents indicated they made changes to their operation to reduce the cost of raising heifers. These changes were contributed mostly to feed, comprising over half the cost to raise a pre-weaned calf and the second largest cost in raising weaned heifers. Nearly half (48 percent) of the respondents indicated they made changes to their operation to increase labor efficiency and/or reduce labor costs. As a result of their participation in the field survey, two heifer growers indicated they reevaluated their respective per head per day charge and increased their fees an average \$0.15 per head per day.

This project has resulted in numerous publications including a white-paper co-authored by this agent. In addition, a three-part series was published in Hoard's Dairyman Magazine and its Spanish and Japanese sister publications, with this agent coordinating agents to write and submit all articles. Three of the five articles were authored or co-authored by this agent. Based on the research project, a presentation was developed by this agent. This project has been presented to nearly 1,000 individuals at twenty-six meetings throughout Wisconsin and the Midwest by eleven agents and specialists with fourteen presentations conducted by this agent reaching nearly 300 individuals.

**V. MAJOR TEACHING EVENT(S)**

**Situation:**

As referenced in the major research portion of this Professional brief, the cost of raising dairy calves and replacement heifers is a very notable expense associated with Wisconsin dairy farms. Calculating the costs associated with raising dairy calves and heifers is an essential part of dairy business management. The outdated 2007 ICPA project was determined to be frequently referenced and utilized by many producers, custom heifer growers and agri-business professionals. To update the data, this agent served as one of the primary investigators of the 2013 ICPA project and provided leadership to conduct the field survey and the subsequent update that occurred in 2015 to answer the following objective.

1. Participants will understand/realize the economic costs associated with raising a dairy replacement on today's dairy farms and custom calf/heifer raising operations.

Local events where this information was presented by this agent included heifer meetings, modernization meetings and local Forage Council meetings. In addition to local events, this agent presented the ICPA research results at regional, state, and national meetings. Examples of these teaching events include: the UW-Extension Dairy Team, Professional Dairy Producers of Wisconsin, the Four-State Extension Dairy Nutrition and Management Conference, and the National Farm Business Management Conference.

**Results:**

County educators were briefed by this agent on the history of the ICPA project. Subject herds were selected and data collected by 13 county Ag Agents. Upon the completion of data collection, the numbers were crunched, and the white paper, fact sheets, presentation(s), and press articles were developed and distributed. At that point, via Dairy Team meetings and webinars, all county educators who were interested in reporting back to the contributing herds and/or programming in this area were given the opportunity to review and understand what the results were on an individual basis as well as the project in its entirety.

**Audience:**

Dairy producers and workers with responsibilities in calf care and management. Secondary audience consisted of educators and agriculture service providers.

**Materials and Methods:**

Economic Costs of Labor Efficiencies Associated with Raising Replacements on Wisconsin Dairy Farms and Custom Heifer Raising Operations White Paper; Heifer Management Blueprints Fact Sheets titled The Cost of Raising Dairy Replacements (2013 and 2015); presentations and numerous newspaper; and e-news articles.

**Evaluation:**

Evaluations over the course of eleven presentations and four years, presented across the state, showed an average improvement of knowledge/understanding of the costs associated with heifer raising at 50% (n=257). Respondents reflected a diverse group of individuals ranging from dairy producers, agricultural lenders, nutritionists, students, educators and veterinarians. Participants expressed the potential for changes in management practices or at least the increased awareness of:

- The re-evaluation of raising versus purchasing heifers
- The realization of how much money is tied up in raising a heifer
- The need to calculate the value of waste milk as it influences raising wet calves

At the National Farm Business Management Conference, participants (all non-Wisconsin residents) in a breakout session realized an increase of knowledge of 88% (n=16). These respondents indicated:

- A desire to hear more about feed cost per heifer or calf and the different cost of feeding different substances
- A willingness to let producers know about these valuable resources
- Wanting to look at the ICPA Study as it compares to Minnesota costs

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### VI. Professional Improvement

<u>Event</u>	<u>Location and Date Attended</u>
Four-State Extension Dairy Nutrition and Management Conference	Dubuque, IA June 2007-present
Various Dairy Team, District in-services and ANRE Faculty Conferences	Various locations 2006-present
NACAA Annual Meeting and Professional Development Conference	Various locations 2006-present
Midwest Forage Association Symposium	Wisconsin Dells, WI 2006-present
Wisconsin Soil, Water and Nutrient Management Meetings	Various locations 2006-present
UW School of Veterinary Medicine In-service	Madison, WI 2015
Wisconsin Agronomy Update Meeting	Various locations 2006-present
Merck Animal Health C.A.R.E. Workshop	Eau Claire, WI

B. Five Year Professional Improvement Plan  
See Plan of Work

### VII. Plans and Reports

- A. **Agent Annual Reviews** – Provided to Department of Agriculture and Life Sciences Chair via Regional Director
- B. **Multi-year Plan of Work**
- C. **Recent Impact Reports, Program, Planning Reports and Year-end review**

### VIII. Additional Program Awards

ANRE Mentor of the Year ó 2015  
NACAA Achievement Award ó 2015  
NACAA Communications Award - National Finalist ó Fact Sheet ó 2015  
NACAA Communications Award - National Finalist ó Team Newsletter - 2015  
NACAA Communications Award - Regional Winner ó Team Newsletter ó 2014  
NACAA Communications Award - State Winner ó Audio Recording ó 2014  
NACAA Communications Award - State Winner ó Feature Story ó 2013  
NACAA Communications Award - State Winner ó Fact Sheet ó 2013