Transferring Innovative Managed Grazing Skills to Beginning Wisconsin Dairy Producers

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Deliverables:

1. DGA will demonstrate a model that provides a path toward an environmentally, economically, and socially more sustainable agricultural economy for the region.

2. Eight to ten Apprentices will have completed 4000 hours of paid training in managed grazing dairy production, mastered the core competencies as laid out in the program's Job Book, built relationships with other graziers and the local business community, become familiar with the agricultural support structure, and developed a business plan. They will have gained the confidence and training to become independent dairy farm owners and to utilize innovative best practices on agriculture lands, particularly in those areas of Wisconsin with the highest risk of expanding CAFOs on more environmentally sensitive land resources.

3. Technical service and training assistance will be provided to eight to ten Master Graziers. Because Masters are at the center of the educational process in the Apprenticeship, it is important that Master Dairy Graziers have the support they need. Masters will be able to demonstrate to Apprentices on the Master's farm how they have improved soil health, water quality, animal health, and productivity.

4. Four existing case studies will be revised and two new ones added to reflect four types of transition/entry models, different scenarios of two of them, related business expansion models for each, and enterprise budgets to support each case.

5. At least five successful managed grazing dairy farms will be owned or managed by DGA graduates (known as Journey Dairy Graziers), and those farms kept out of row crop production.

6. Three semi-annual reports will be completed and submitted on time. These will include performance items specific to this project such as:

   a. how many Apprentice and Master Grazier contracts are deployed,

   b. the six-month evaluation of those relationships,

   c. the progress of each Apprentice in fulfilling the core competencies, and

   d. each Apprentices program completion and achievement as Journey Dairy Graziers.

7. Narrative supplements to the requests for reimbursements that explain payment requests.

8. Four revised case studies and two new case studies, each with concomitant enterprise budgets.

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Executive Summary

NRCS Priorities:
While this project targets Historically Underserved Producers, and addresses priorities of Nutrient Management, Soil Health, Air Quality and Wildlife Habitat Priorities, the Economics and Sociology High Priority is selected because this project demonstrates the impacts of conservation practices on net revenue, net cost, and yield variability, and uses case studies, economic models and budgets to do so as described herein.

Goals and Objectives
The primary goal of this project was to stimulate the adoption of innovative managed intensive grazing systems by beginning dairy farmers and to transition existing grazing farms to skilled successors in Wisconsin through formal Apprenticeship.

To accomplish that goal, this project set out to meet the following objectives:

1. Demonstrate a managed grazing model that provides a path toward an economically, environmentally, and socially more sustainable agricultural economy for the region on eight to ten working farms.
2. Provide technical assistance, professional development training, and financial consulting services to participating Apprentices and Master Graziers.
3. Start eight to ten Dairy Grazing Apprentices in Wisconsin who reach Journeyman status in two years.
4. Enhance four case studies to include enterprise budgets to demonstrate the impacts of the conservation practices inherent in managed dairy grazing on net revenue, net cost, and yield variability.
5. Write two new case studies and enterprise budgets on alternative models of investment for mid-career managed dairy graziers and/or transition for retiring dairy graziers, including milk-share partnership, spin-off farm and farm transition.

Case studies to be available to all on the Dairy Grazing Apprenticeship website (dga-national.org) and can be used nationally by the NRCS with its clientele.

Accomplishments
Dairy Grazing Apprenticeship is a National Apprenticeship in managed-grazing dairy production that is registered with the U.S. Department of Labor-Employment and Training Administration. . As a formal Apprenticeship, DGA uses the model of work-based education that has been used in the skilled trades for more than a century. The program consists of 4000 hours over two years and prepares Apprentices to manage and own a grazing-based dairy farm by combining work-based training with related coursework and peer-to-peer learning. Of those hours, 3,712 are employment and mentoring under an experienced grazing-based dairy farmer who has undergone the approval process to become a Master Dairy Grazier. The Master-Apprentice relationship is structured around the *DGA Training Guidelines*, which is based on the DGA National Standards, lays out required competencies for operating a successful managed-grazing dairy farm and provides a blueprint for the transfer of knowledge and skills. The other 288 hours are related instruction designed to develop knowledge base, enhance the on-farm training, and provide networking opportunities. Related instruction includes formal coursework, group learning activities, pasture walks, and conferences.

As a result of this project, DGA now has 36 Master Dairy Graziers in central and western Wisconsin whose farms have been assessed and approved for 1) their capacity to demonstrate the sustainability and profitability of managed-grazing for dairy production and 2) for their suitability as training sites for DGA's two-year formal Apprenticeship. The farms vary in herd size, acreage, and business model. Several are certified organic, in transition to organic or use organic practices but are not certified. Organic certification is not a requirement as many grazing-based farms prefer to run a seasonal operation. All of the approved Masters have expressed a commitment to assisting the next generation get started in dairy and to sharing their knowledge of managed grazing as a best practice improving soil health, water quality, animal health, and productivity.

All Masters are EQIP eligible producers but none are being compensated directly from the grant. Eight Masters participated in the project, provided on-farm a combined total of training, and contributed in-kind match of teaching time for approximately 40 hours per month by mentoring Apprentices over and above the requirements of a regular employee. Seven Apprentices in central and western Wisconsin have graduated to Journey Dairy Grazier status.

Robert Brandt and Mary C. Anderson, both experienced grazing specialists and Ag educators, served as Education Coordinators for Masters and Apprentices in the project. Brandt and Anderson have extensive experience working with dairy farmers, writing grazing plans, and providing technical assistance. As Education Coordinators, they have been responsible for monitoring and providing support for the relationship between Masters and Apprentices, making sure Apprentices fulfill on-the-job training and related instruction requirements, coordinating pasture walks and discussion groups, and providing technical assistance to Masters, Apprentices, and Journey Dairy Graziers.

Tom Cadwallader of Cadwallader Consulting LLC provided financial analysis and business planning services to Masters and Apprentices. He also collected financial data for revised and new case studies and completed a report on the financial performance of Journey Dairy Graziers.

Project Extension

The project start date was delayed from 9/29/2014 to 1/09/2015 because the grant award was transferred from one organization, GrassWorks, which originally served as the fiscal sponsor, to the current awardee, Dairy Grazing Apprenticeship (DGA). DGA began as a program of the nonprofit producer organization, GrassWorks, but developed into an independent organization and, in August of 2014, received confirmation of its own 501(c)3 non-profit status. Because DGA no longer required fiscal sponsorship, the 2014 CIG award [69-3A75-15-053] was transferred from GrassWorks to DGA. The process took about three months. Although the start date for the project was pushed back, the end date of 8/31/2015 on the award agreement remained the same. DGA requested and was granted a three-month extension to 11/31/2016 so that the activities laid out in the proposal could be completed in the two-year original time frame. Funds were dispersed as anticipated.

Recommendations

The addition of an Education Coordinator within the Apprenticeship structure for the transfer of innovative managed-grazing skills, knowledge, and farms from one generation improves program outcomes. Success of farm transition improves if a financial consultant is involved who can help the current and aspiring dairy graziers think through their goals to find common ground and then work through which options are financially and operationally viable. Even when milk prices are at historic lows, as they have been since 2015, managed grazing remains a key method for improving farm profitability and building long term productive capacity of new dairy farms.

Introduction

"Transferring Innovative Managed Grazing Skills to Beginning Wisconsin Dairy Producers" has utilized formal Apprenticeship to provide comprehensive curriculum and a structure of support to transfer managed grazing knowledge and skills; provided on-the-ground monitoring, educational support, and technical assistance for Master-Apprentice pairs; and offered financial planning services for Masters and program graduates (Journey Dairy Graziers) as they preparing for next stages in their farming careers.

Key Staff

Executive Director Joseph Tomanld, III, the PD for the project, has a background in agricultural education and taught high school for four years before becoming a full-time dairy farmer. Since 1998, by utilizing managed grazing techniques, he has been able to turn a non-producing start-up farm into one that generates over $500,000 of gross revenue each year, which has allowed him to invest in a second "spin-off" farm. Tomandl is also a Master Dairy Grazier and is training his second Apprentice. His first Apprentice is managing the spin-off farm and has the option of transitioning into ownership.

Program Director, Laura Paine, was hired in June of 2015 to oversee expansion, develop procedures and standardize program delivery, and facilitate effective communication. Paine has more than 20 years of experience in grazing and organic farming research and education and worked previously for the University of Wisconsin and UW Extension, and the Wisconsin Department of Agriculture, Trade and Consumer Protection. She has extensive experience in adult education and is a certified Holistic Management instructor.

Education Coordinator, Robert Brandt, a grazing specialist and former managed-grazing dairy farmer, to serve as Education Coordinator in Central Wisconsin. Brandt has extensive experience working with dairy farmers, writing grazing plans, and providing technical assistance. As Education Coordinator for the project, Brandt was responsible for monitoring and providing support for the relationship between Masters and Apprentices, making sure the Apprentice fulfills on-the-job training and related instruction requirements, coordinating pasture walks and discussion groups, and providing technical assistance to Masters and Apprentices.

Education Coordinator, Mary C. Anderson, a grazing specialist with River Country RC&D was brought on to the project to assist with farmers in Western Wisconsin. She also monitored and provided support for the relationship between Masters and Apprentices, making sure the Apprentice fulfills on-the-job training and related instruction requirements, coordinating pasture walks and discussion groups, and providing technical assistance to Masters and Apprentices.

Communications Coordinator, Bridget O'Meara, provided marketing, communication, and technical support for the project, which included training staff and participants on the new website (www.dga-national.org), launched in 2015. O'Meara has been with DGA since 2010. She formerly taught at the University of Wisconsin-River Falls and has been working with farmers and sustainable agriculture non-profit organizations for 15 years.

Financial Consultant, Tom Cadwallader, provided financial analysis and business planning services to Masters and Journey Dairy Graizers. He collected financial data for revision of existing case studies and development of new case studies. Cadwallader had a 23-year career with University of Wisconsin Extension and is experienced on a variety of agricultural business planning and development issues, ranging from strategic planning, to agricultural land use planning to farm financial management on grazing dairy farms.

Case Study Contract Writer, Raylene Nickel, was brought in to serve on the project on a contract basis when the rapid growth of DGA into new states increased demands on staff time. Nickel is a free-lance writer with more than 30 years of experience. Since 2005, Nickel writes almost exclusively for *Successful Farming* magazine, drawing on sources from around the nation. She developed case studies based on phone interviews with Journey Dairy Graziers, Masters, Cadawallader, and DGA program staff.

Farmer Participants

Master Dairy Graziers

All Masters who participated in the project are EQIP eligible producers. In this formal Apprenticeship program, the Masters are both employers and the primary trainers for Apprentices. They are responsible for finding, interviewing, assessing, and hiring as Apprentice who will be a good fit for their farming operation and for providing comprehensive training in all aspects of owning and operating a managed grazing dairy operation. The competencies required are laid out in the *DGA Training Guidelines* (or "Job Book"), which provides a structure for the mentoring processes.

Masters must pay Apprentices a minimum a minimum hourly rate of $8.00 at 0-6 months, $8.50 at 6-12 months, $9.00 at 12-18 months, and $9.50 at 18-24 months or equivalent. Value of in-kind contribution may be included in calculation if needed to meet the minimum. Dairy Grazing Apprenticeship is registered as a National Apprenticeship with the U.S. Department of Labor, which requires tracking of progressive wage increase of (at least) 6.25% every 6 months for Apprentices. The progressive wage reflects the growing competency of an Apprentice and is required regardless of starting wage.

Masters help to prepare Apprentices to become independent dairy grazing business owners and so are also required to provide teaching time over and above the requirements of a regular employee. Forty hours per month is recommended, although actual teaching time varies and the amount required often diminishes as the Apprentice becomes more competent. This extra teaching time, valued at $25.00 per hour, was used as matching contribution for this project.

Masters involved in this project:

Scott Adank, Stratford, WI
Peter Arnold, Edgar, WI
Donald Boland, Gays Mills, WI
Andy Bures, Deerbrook, WI
Charles Flodquist, Colfax, WI
Leslie Holtz, Rudolpjh, WI
Joe Tomandl, III, Medford, WI
Paul Onan, Amherst Junction, WI
Greg Galbraith, Aniwa, WI

Other Masters, whose Apprentices graduated to Journey Dairy Grazier status previous to the start of project and were featured in case studies, are as follows: Hans Breitenmoser, Merrill, WI and Genn Harder, Rib Lake, WI, and Jim Linsemier, Athens, WI. Greg Galbraith of Aniwa, WI, was previously Master for Gabrielle Rojas and, during the project, his son David graduated the program.

Apprentices/Journey Dairy Graziers

Apprentices and Journey Dairy Graziers who participated in the project are all aspiring dairy farmers who have chosen to enroll in this formal Apprenticeship program as a career pathway to independent managed-grazing dairy farm ownership. They have different backgrounds and levels of experience, from those who have worked extensively in dairy industry but have not been able to finance a start-up farm to those with no experience and only a dream of dairy farming.

Apprentice are employed and mentored by the Master and work to achieve competency in all major work categories. They also attend classes (and pay tuition for accredited coursework) and participate in related instruction requirements, including farm visits with Education Coordinator, pasture walks, discussion groups, and farming conferences.

The chart below identifies Apprentices and Journey Dairy Grazier who participated in the project, their Masters, and their status as of the project end date 11/31/2016:

Apprentice	Master	Work Hours	Teaching Hours	Related Instruction
Leo Arnold	Peter Arnold	1-15-2017 start date		
Katie Braun	Leslie Holtz	960	170	Organic Soils, Holistic Management
Ryan Adank	Scott Adank	3712	960	WSBDF, Dairy Nutrition Seminar, Dairy Health Seminar, Soil, Nutrients & Composting, Holistic Management
John Richmond	Charles Flodquist	3712	960	WSBDF, Dairy Nutrition Seminar, Dairy Health Seminar, Soil, Nutrients & Composting, Holistic Management
Brian Klinge	Andy Bures	3712	960	WSBDF, Dairy Nutrition Seminar, Dairy Health Seminar, Soil, Nutrients & Composting Holistic Management
Daniel Rothenberger	Peter Arnold	3712	960	WSBDF, Dairy Nutrition Seminar, Dairy Health Seminar, Soil, Nutrients & Composting, Holistic Management
Danny Deyo	Joe Tomandl, III	3712	960	Completed (288 hours)
Nathan Peplinski	Paul Onan	3712	960	Completed (288 hours)
Reed Fitton	Donald Boland	3712	960	Completed (288 hours)
David Galbraith	Greg Galbraith	3712	960	Completed (288 hours)
Drew Votis (graduated in 2014)	Linsmeier/Zettler	3712	960	Completed (288 hours)
Nate Weisenfeld (graduated in 2013)	Han Breitenmoser	3712	960	Completed (288 hours)
Brandon Probst (graduated in 2013)	Glen Harder	3712	960	Completed (288 hours)
Gabby Rojas (graduated in 2013)	Greg Galbraith	3712	960	Completed (288 hours)

Background

Loss of Dairy Farms and Farm Consolidation

Across the nation, dairy farm numbers have declined by more than 40% in the last 15 years, with the most significant declines occurring in traditional dairy states the Midwest and Great Lakes Region. Despite the economic and cultural significance of dairy farming in Wisconsin, the state loses around 500 dairy farms every year. Beginning farmers are not entering the profession at a rate that offsets the loss of retiring producers. Because the average age of farmers in the state and the nation is 58 years old and many do not have an identified successor, farm loss is expected to continue.

Following national trends, confinement dairy operations in Wisconsin have expanded by increasing the number of cows on a single site in order to meet industry needs. Although 80% of Wisconsin's 11,000 dairy herds had fewer than 100 cows per farm, the number of 400-1000 cow dairies has been steadily increasing. These operations rely on a feeding system based on corn and soybeans that requires annual tillage, synthetic inputs, manure spreading and high fossil fuel use for storing and transporting feed and handling waste. As herd sizes increase out of proportion to the land-base, Wisconsin and other Midwestern states are beginning to witness the negative impacts of livestock confinement.

Natural Environmental Degradation

The unintended consequences of intensified rowcrop agriculture and confinement livestock production are well known. Sediment and nutrient run-off has caused eutrification of inland waterbodies and hypoxic zones in the Gulf of Mexico and the Great Lakes. Manure spills and leaching have resulted in fish kills and contaminated well water. In contrast, a diverse dairy sector with family scale farms dispersed across the landscape provide broad benefits for the natural environment, as well as on animals, rural communities and human health.

In the next decade, an entire generation of farmers will retire and an estimated 30 million acres will change hands. Current trends suggest that ownership of land will transfer to non-farmers or be consolidated into larger operations, further exacerbating natural resource degradation.

The growing number of large confinement dairies result in the concentration of not only livestock on the landscape but also the economic activity associated with dairy production. Consolidation leads to capital-intensive operations, which increases barriers to ownership for new farmers, resulting in more laborers being hired and fewer independent operators. Managed grazing, by contrast, is a highly efficient farming method that works with natural biological systems to build soils and reduce the cost of off-farm inputs. It can provide a comfortable income for a family with a smaller herd and is one of the best predictors of success for start-up farms. Three thousand 100-cow managed grazing dairies can provide raw product for the dairy industry *and* support rural economies better than one hundred 3000-cow confinement dairies. More independent farms mean more families and individuals on the land to serve as a client base for rural schools, organizations, and businesses. The community and the environment benefit from larger numbers of small and mid-sized grazing dairy farms dispersed across the landscape.

Managed Dairy Grazing.

The most efficient, productive, and profitable dairy farming method suitable to small and mid-sized farms is managed grazing (Tranel 2008). Managed grazing is the innovative and low-cost means of natural resource stewardship for dairy farms. In managed grazing systems, the majority of farm acres are planted to perennial forages and livestock are rotated through paddocks of high quality grasses

and legumes, which are then allowed to rest and regrow. The method mimics the nutrient cycles found in natural systems, restores soil and water resources, protects wildlife and pollinator habitat, improves animal health and produces high quality milk and dairy products for consumers. Producers rely on the productive capacity of the soils rather than synthetic inputs, so stocking rates are matched to the land base. The controlled and appropriate integration of animals on the land holds and replenishes soil under the cover of perennial vegetation. The Natural Resources Conservation Service has identified managed grazing as a *best practice* for resource conservation. Compared to a confinement dairy of the same size, a 250-acre managed grazing dairy farm will reduce sediment-bound P runoff by 210 lbs. and soluble P runoff by 13 lbs. per acre (Rotz et al. 2009).

University of Wisconsin research by Dr. Steven Deller shows that each dairy cow represents more than $20,000 in economic activity including milk sales, supply purchasing, hired labor, etc. Compared to large confinement operations, smaller scale dairies, such as managed grazing operations, are more likely to purchase hay and grain from a neighbor, buy supplies at the local coop, and hire locally than large operations, keeping those dollars circulating in the local economy.

Barriers to Entry for Beginning Farmers Undermines Sustainable Growth in the Dairy Industry.
Managed grazing holds tremendous promise for growing the dairy industry in a way that benefits both local economies and the environment. But the barriers to entry for underserved beginning dairy farmers are often prohibitive. For individuals seeking to start in dairy farming, whether or not they are from farm backgrounds, these generally include some or all of the following:

a.) lack of knowledge and skills in inexpensive, sustainable farming methods;
b.) lack of access to courses in dairy science or pasture management;
c.) inability to transition from hourly employment to independent full-time farming;
d.) little or no training in financial management and business planning;
e.) unfamiliarity with local agricultural services infrastructure; and
f.) lack of initial capital required for equipment, cows, and land.

Most established agricultural educational programs in the Great Lakes Region, including those available at universities, do not prepare students to become independent farmers but rather funnel them into careers for companies that provide agricultural products and services.

Current producers also face barriers to achieving their career goals. Those preparing for retirement want to transition the grazing operations that they have painstakingly built to capable successors. But without an heir or a trusted employee to take over the farm, a retiring grazier is usually forced sell the land and the herd. At the same time, entrepreneurial mid-career dairy graziers increasingly seek opportunities to expand or diversify their investments. Because the size of a grazing farm is limited by the distance a cow can walk to the barn for milking, expansion is a less viable option. Purchasing a nearby farm and duplicating their operation is a growing trend among these farmers. All of these farmers need skilled management-level partners in order to reach their goals.

History of and Need for Dairy Grazing Apprenticeship
Dairy Grazing Apprenticeship was initially created by dairy farmers in Wisconsin to stem the loss of family scale dairy farms by training skilled people for the dairy industry. To address barriers to entry and provide comprehensive training for aspiring dairy farmers, a formal Apprenticeship program—the first of its kind in the nation—was developed by GrassWorks, Inc. (a WI-based farmer organization), in partnership with the WI Department of Workforce Development, and the WI Technical College System, with funding support from USDA-NIFA's Beginning Farming and

Rancher Development Program. Industry stakeholders, including GrassWorks members and other dairy farmers, Ag business leaders, Ag educators, and agency representatives convened to identify the core competencies required to own and operate a managed-grazing dairy operation. Using a formal DACUM process, a comprehensive curriculum based on those competencies was developed. This two year 4000-hour program provides 3712 hours of work-based training as well as 288 hours of related classroom instruction in managed-grazing dairy production.

DGA addresses barriers to entry for underserved beginning farmers by providing on-farm employment under an experienced grazier, formal instruction delivered online as well as peer-to-peer learning opportunities, financial management support, pasture walks with local agricultural professionals, and models of equity building, investment, and farm transfer. The program brings late-career and aspiring farmers together to reverse farm loss, keep more land under managed grazing, and grow the dairy industry sustainably. As a generation of farmers reaches retirement age, the next decade is the window of opportunity to transfer many dairy farms to managed grazing.

In February of 2015, in response to interest from dairy farmers, universities, and community based organizations in other parts of the country, DGA became a registered National Apprenticeship under the U.S. Department of Labor-Employment and Training Administration (DOL-ETA) with the capacity to be adopted by any state in the United States. As part of its national expansion, DGA has entered into partnerships with Cornell University and SCNY Regional Extension and the Pennsylvania Association for Sustainable Agriculture (PASA) to implement the program in the Great Lakes Region. These partners are well-networked in the farming communities that they serve as well as with other institutions and community-based organizations in their states.

Evidence it works

DGA draws on a long history of innovation and peer-to-peer education in the grazing community and provides institutional support for aspiring farmers by utilizing an educational model that has been used to prepare skilled people for decades. Nationwide, the program currently has 92 approved Master Dairy Graziers in nine states, 33 active Master-Apprentice pairs,) 135 Apprentice Candidates seeking to be hired, and 11 graduates (called Journey Dairy Graziers. Of the 11 Journey Dairy Graziers, four are now running their own grazing dairy farms, after building equity in cattle during the Apprenticeship; one is managing a Master's second farm, with the option to transition to ownership; and five are in equity earning positions and working with the program's financial consultant to help them achieve their goals.

Although formal Apprenticeship in managed grazing dairy farming is unprecedented in the United States, successful examples can be found elsewhere, in Germany, the Netherlands and other European countries. In New Zealand, as well, formal farmer career training through well-integrated, institutionalized structures has been extremely successful in generating new farmers and has resulted in steady, sustainable growth of managed grazing dairy farms (Cadwallader 2000).

Review of Methods

Dairy Grazing Apprenticeship links established farmers with beginning farmers to provide a guided pathway for transitioning managed-grazing skills and knowledge to bring more acreage under the proven benefits of managed grazing. DGA is 4000-hour program. It combines 3712 hours of on-farm employment (the equivalent of a full-time job) and mentorship under an experienced Master Dairy Grazier with 288 hours of instruction through the Wisconsin Technical College System and University of Wisconsin System. A distance education option allows students to enroll in courses and participate via live webcast and interactive audio feed from places closer to home. The Apprenticeship program includes financial management support, peer-to-peer discussion groups with local agricultural professionals, and case studies of equity building, milk-share partnerships, investment, and farm transfer. Entrants become Apprentices, then Journey Dairy Graziers, and finally Master Dairy Graziers. By providing post-graduate support, DGA increases the chances of success in their graduates.

a) *Master Grazier Selection and Training* – Master Graziers apply through the DGA website where a minimum set of qualifications and obligations are posted. They must be experienced and successful managed grazing dairy farmers and business owners. The Program Director interviews a Master, assesses the farm site, and makes recommendations to the Steering Committee that they approve or disapprove. Approved Master Graziers represent a range of farm sizes, management techniques, career stages and goals. Thirty-three have been approved. Master Graziers are responsible for contacting, interviewing, and hiring Apprentices. They employ Apprentices and teach them the production and management skills necessary to operate a successful grass-based dairy. The Master documents the Apprentice's progress in a comprehensive *DGA Training Guidelines*, often referred to as the "Job Book" that identifies the core competencies required to operate a managed grazing dairy farm and provides structure to the mentoring process. Masters attend a series of three workshops designed to clarify requirements and goals of the program, improve interpersonal and management skills needed to mentor an Apprentice, and address practical aspects of implementing their role as Masters.

In initial consults and during on-farm peer-to-peer sessions, the Education Coordinator and Financial Advisor provide up-to-date information, plans, applicable technologies, financial projections and decision-making tools that each Master needs to take his/her established farm to the next level. For these established farmers, investing in an Apprentice (both financially and as a mentor) is an important first step in growing the business.

b) *Apprentice Selection and Training* - Apprentices apply online at the DGA website. Approved Master Graziers browse the database of applications, and then interviews and selects the apprentice of his/her choice. If a Master has an existing relationship with an employee who is a good candidate, they both may be able to enter the program.

Once a hire is made, the Education Coordinator meets with the pair to gain a clear understanding of the backgrounds, experiences, needs, preferences and personalities as well as the professional and personal goals. There is a six-month probationary period after which Apprentices may leave or commit to full apprenticeship. The Master Graziers, as employers, provide the Apprentice's wages and in-kind teaching time over and above the needs for a regular employee in all aspects of running a managed grazing dairy. Apprentices contribute via tuition payments, in-kind time, intellectual energy and labor.

Five Apprentices are already selected by five Master Graziers and three to five more will be selected from a pool of more than 50 applicants for this project. Apprentices work on farm for the Master Grazier. Apprentices learn both on-farm and in the classroom in the Wisconsin Technical College System (WTCS), Wisconsin School for Beginning Dairy and Livestock Farmers (WSBDF), and/or the University of Wisconsin (UW) System. Apprentices are responsible for their own tuition and fees. They are paid by the Master for both their on-farm work and for their hours in related instruction. They also have the opportunity to learn from and build relationships with other Apprentices during bi-weekly peer-to-peer meetings, which comprise discussion groups, pasture walks and information sessions with local agricultural and business professionals (such as bankers, nutritionists, veterinarians, and more). The program recognizes the skills and previous experience of applicants who have been farm hands, hired farm managers and junior operators, as well as those with comparable coursework who may receive credit hours toward DGA graduation requirements.

c) *Apprenticeship Contract* - Each Apprentice and Master Grazier sign an "Apprenticeship Contract" that lays out the responsibilities of Apprentice, the Master Grazier as employer, and the state of Wisconsin. The Dairy Grazing Apprenticeship contract is a legal document and contains the following information:

1) Extent of Period of Dairy Grazier Apprenticeship
   Two-year program
   4,000 hours of on-the-farm training
   288 hours of off-farm instruction
   Additional related instruction as required

2) Probationary Period
   6-month period of adjustment
   the contract may be cancelled during this time by Master or Apprentice

3) School Attendance for "Related Instruction"
   core curriculum (mandatory but credit provision may be granted)
   individualized curriculum (developed with guidance from Education Coordinator)
   courses taken through WTCS or WSBLDF
   Apprentice must be released from farm work to attend courses

4) National Apprenticeship - Work Process Schedule

   The Schedule developed with the U.S. Dept. of Labor-Office of Apprenticeship outlines:
   a. The approximate hours each Apprentice needs of on the farm experience in the following topics, which have a detailed list of subtopics:
      - Measure and manage pastures for optimal quality and quantity
      - Manage cattle appropriately-heifers/dry cows, calves, milking cows
      - Manage milking operations
      - Assess dairy nutritional needs
      - Evaluate grazing and dairy farm information for effective decision making
      - Manage soil and water resources for productivity and health
      - Manage farm business operations profitably
      - Optional topics

b. Outline of "Related Instruction" taken both as required coursework and other education opportunities, such the GrassWorks Grazing Conference, pasture walks, and farm discussion groups.

c. The "Program Exit Learning Outcomes" details the assessment strategies and performance criteria in 13 areas of competency. Each area has from six to 15 performance criteria.

5) Minimum Compensation to be Paid (per hour for on-farm and paid-related instruction)

0-6 months - $8.00 (probationary period)
6-12 months - $8.50
12-18 months - $9.00
18-24 months - $9.50
3rd year - $10.00

6) Credit Provisions

Attend two grazing conferences for credits
Apprentices may receive credit for previous work and school experience

e) Detail on Processes The DGA Apprenticeship Committee set bench marks—including the number of Apprentices enrolled each year, materials developed, new courses created—and will make sure these are being met according to the Work Process Schedule, a component of a federally registered "apprenticeable occupation." The DGA Apprenticeship Committee meets with the Executive Director and Program Director quarterly to assess the program and recommend changes, if necessary. The progress of individual Apprentices as well as the overall effectiveness of the program are evaluated during monthly status reviews among the Executive Director, Program Director, Education Coordinator, Master Graziers and Apprentices. Coursework of Apprentices is graded by their WTCS or WSBDF instructors. They are required to make satisfactory progress under the guidelines of the WTCS and UW Systems and the US Dept. of Labor.

f) Multiplier Effect - Eventually, as Journey Dairy Graziers move into positions as independent owners, they will also have the option of continuing their training with the goal of becoming Master Graziers themselves. Over the course of a 20-year career, a graduate of DGA may go on to train three or four new Apprentices. In this way, the program has potential for exponential growth.

g) DGA Model - DGA maintains a database of all participants in the program, both Apprentices and Master Graziers. This allows DGA to track progress, promote success stories, sustain peer networks and facilitate partnerships between farmers. As its successes become known, more potential farmers and established dairy graziers are being attracted to the program.

DGA provides multiple entry points for established farmers who want to: a) increase profitability by implementing managed grazing; b) diversify their investments and grow the grass-based dairy industry; or c) transition an established farm to the next generation. Investment strategies and potential business partnerships are part of the curriculum. Financial management issues related to investment and transition models are addressed during peer-to-peer sessions. The Program Coordinator and Cadwallader consult with both Master Graziers and Apprentices about potential business partnerships. At a later point, the Journeyman Dairy Grazier and the Master Grazier can meet with Cadwallader to develop a legal, transparent and mutually beneficial business plan and contract. In screening applicants to the program, every effort is made to match the goals of incoming Apprentices with those of Master Graziers to facilitate these partnerships.

f. Case Studies and Enterprise Budgets - The DGA website has real life cases from its program that will be revised to include enterprise budgets and to better reflect the business model they illustrate. These new models of investment and/or transition involve Apprentices and established managed grazing dairy farmers, either those retiring or those looking for business expansion. The following career development models will be either revised or clearly developed by the Communications Coordinator in collaboration with the Program Director, Education Coordinator, and Financial Consultant. All will be made freely available on the DGA website.

1. *Spin-off Farm* – Master Grazier (and/or other established dairy farmer) invests in new farm operated by Journeyman Dairy Grazier at another location. The Program Director has utilized this model himself and will allow Master Graziers and Apprentices full access to his records, including labor and feed costs, support staff, business structures, and pro forma statements. Another scenario is the Journeyman is employed by the Master Grazier as a manager of the second farm. He or she earns a salary and/or a percentage of the milk check and also receives cattle, as partial compensation. Cattle are productive assets by which beginning farmers can build equity. They can be used as collateral for a loan—to buy more cattle, equipment and eventually, the land itself. (The good health and longevity of grazing cows is an asset that is often overlooked. Once a grazing herd is established, income can also be generated from heifer sales.)
2. *Expansion through Milk-Sharing Partnerships*– Master Grazier expands operation in current location and establishes milk-sharing partnership with Journeyman Dairy Grazier. This arrangement has worked well in New Zealand and is currently being explored by Professor Larry Tranel, Iowa State University, and several producers in the region. Typically, in a milk-sharing partnership, one person (the Master Grazier) owns the land and the facilities and another person (the Journeyman) owns the cows and equipment. Here, the Journeyman would manage the farm and the milk check would be split between the partners. As with any business arrangement, steps must be taken to ensure partnerships are transparent and lawful.
3. *Transfer of Ownership* – Late-career/retiring Master Grazier transfers ownership of existing farm to Journeyman Dairy Grazier. This is a strategy for bringing new farmers into land ownership that is already being implemented by the Wisconsin Farm Center and will be addressed by the Financial Advisor. Either of the above scenarios might lead to farmer transfer. A Journeyman may build equity, bring equity or manage a farm, as equity is gradually acquired. Many of Wisconsin's most successful and highly skilled graziers are at the later stages in their careers and are seeking to eventually divest/transfer their farm business to someone who is highly qualified. The Apprenticeship Program intends to fill the need for qualified new dairy farmers.
4. *Farm Manager* – Journeyman Dairy Grazier attains managerial position on one or more grazing dairy farms. Graduates of the Apprenticeship Program who do not yet want to commit to a particular farm or a specific location will be able to find employment as a dairy manager. Establishing a pool of highly qualified managers will ease the pressure on existing dairy farmers to expand in order to hire a permanent full-time manager with extensive training in dairy grazing. For existing farmers, the potential for labor relief could mean the difference between implementing managed grazing and expanding a confinement operation. Although management alone is unlikely to lead to an equity position, it is an important way to gain experience and maintain contacts with local service providers (bankers, nutritionists, agency representatives, etc.).

Conclusions and Recommendations

The addition a local Education Coordinator for program participants in central and western Wisconsin significantly improved program outcomes among beginning dairy farmers. While DGA was created by and for farmers with a comprehensive curriculum for managing and owning a managed-grazing dairy and it paired current and aspiring farmers for the transfer of skills, it became clear early on that more support was required for Apprentices to actually complete the program and become successful dairy farmers. From 2010 to 2013, DGA had an attrition rate of 50%, which is in line with most formal Apprenticeship programs for skilled trades. However, with the additional support and monitoring of a local Education Coordinator to guide the mentoring process, facilitate effective communication between Masters and Apprentices, and coordinate group education activities with Apprentice cohorts, the rate of attrition has dropped to less than 10%.

Financial planning services have also improved success rates for graduates, even in an era of historically low milk prices. While each situation is unique and has its own challenges, the success of a successful transition improves if a third party is involved who can help the current and aspiring dairy graziers think through their goals and find where there is common ground and then work through which options are financially and operationally viable. DGA not only improved outcomes in central Wisconsin with NRCS-CIG funding, but also secured additional funding for Education Coordinators in other areas of Wisconsin, as well as southern Minnesota and Missouri during the funding period.

The effectiveness of an Apprenticeship model that combines formal accredited structure with local support has led to the rapid expansion of DGA throughout Wisconsin (which now has 54 approved Master farms, compared to 28 in 2014). Moreover, the success of DGA in Wisconsin has increased interest in the program among farmers nationwide, community-based organizations, and universities in other states and led to the expansion of DGA.

Today Dairy Grazing Apprenticeship has 96 approved Master Dairy Graziers in nine states: Iowa, Maine, Missouri, Minnesota, New Jersey, New York, Pennsylvania, and Vermont as well as Wisconsin. The program has 35 active Master-Apprentice pairs, 12 Journey Dairy Graziers, and 156Apprentice Candidates seeking to be hired.

BULLETIN 2015-13 March 10, 2015

U.S. Department of Labor Employment and Training Administration Office of Apprenticeship (OA) Washington, D.C. 20210	Distribution: A-541 Headquarters A-544 All Field Tech A-547 SD+RD+SAA+; Lab.Com	Subject: New National Program Standards of Apprenticeship for Dairy Grazing Apprenticeship (DGA) Code: 400.1
Symbols: DSNIP/SHS		Action: Immediate

PURPOSE: To inform the staff of OA and the State Apprenticeship Agencies (SAA), Registered Apprenticeship program sponsors and other Registered Apprenticeship partners of the approval of new National Standards of Apprenticeship for Dairy Grazing Apprenticesihp (DGA).

BACKGROUND: These new National Program Standards of Apprenticeship submitted by Mr. Joe Tomandl III, Program Manager, DGA, was approved by the OA Administrator on February 6, 2015. The new National Apprenticeship Standards for DGA, for the occupation of Dairy Grazier will be serviced by the OA National Office.

If you have any questions, please contact Stephen Sage, Apprenticeship and Training Representative, Division of Standards and National Industry Promotion, at 202-693-3221.

ACTION: This bulletin is being provided to OA staff for informational purposes only. The OA National Office will be responsible for maintenance and technical assistance regarding this program.

NOTE: This bulletin is being sent via electronic mail.

Appendix B

NEW

NATIONAL

NDARDS OF APPRENTICESHIP

DEVELOPED BY

Dairy Grazing Apprenticeship

FOR THE OCCUPATION OF

Dairy Grazier

O*NET-SOC CODE: 11-9013.02

RAPIDS CODE: 2019HY

Approved by the
U.S. Department of Labor
Office of Apprenticeship

Registered as part of the National Apprenticeship Program in accordance with the basic Standards of Apprenticeship by the Secretary of Labor

_____

JOHN V. LADD, ADMINISTRATOR
Office of Apprenticeship

National Registration Number: _____

Date Registered: _____

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FOREWORD

These Dairy Grazing Apprenticeship apprenticeship standards have as their objective, the training of Dairy Graziers skilled in all phases of the industry. The sponsor recognizes that in order to accomplish this, there must be well-developed on-the-job learning combined with related instruction.

This recognition has resulted in the development of these standards of apprenticeship. They were developed in accordance with the basic standards recommended by the U.S. Department of Labor, Office of Apprenticeship, as a basis from which the sponsor can work to establish an apprenticeship training program that meets the particular needs of the area.

DEFINITIONS

APPRENTICE: Any individual employed by the employer meeting the qualifications described in the standards of apprenticeship who has signed an Apprenticeship Agreement with the *program sponsor providing* for training and related instruction under these Standards, and who is registered with the Registration Agency.

APPRENTICE ELECTRONIC REGISTRATION (AER): Is an electronic tool that allows for instantaneous transmission of apprentice data for more efficient registration of apprentices and provides program sponsors with a faster turnaround on their submissions and access to their apprenticeship program data.

APPRENTICESHIP AGREEMENT: The written agreement between the apprentice and the Sponsor setting forth the responsibilities and obligations of all parties to the Apprenticeship Agreement with respect to the Apprentice's employment and training under these Standards. Each Apprenticeship Agreement must be registered with the Registration Agency.

APPRENTICESHIP COMMITTEE (COMMITTEE): Apprenticeship Committee (Committee) means those persons designated by the sponsor to act as an agent for the sponsor in the administration of the program. This committee is a non-joint committee, which may also be known as a unilateral or group non-joint (may include workers) committee has employer representatives but does not have a bone fide collective bargaining agent as a participant.

CERTIFICATE OF COMPLETION OF APPRENTICESHIP: The Certificate of Completion of Apprenticeship issued by the Registration Agency to those registered apprentices certified and documented as successfully completing the apprentice training requirements outlined in these Standards of Apprenticeship.

ELECTRONIC MEDIA: Media that utilize electronics or electromechanical energy for the end user (audience) to access the content; and includes, but is not limited to, electronic storage media, transmission media, the Internet, extranet, lease lines, dial-up lines, private networks, and the physical movement of removable/transportable electronic media and/or interactive distance learning.

EMPLOYER: Means any person or organization employing an apprentice whether or not such person or organization is a party to an Apprenticeship Agreement with the apprentice.

HYBRID OCCUPATION: The hybrid approach measures the individual apprentice's skill acquisition through a combination of specified minimum number of hours of on-the-job-learning and the successful demonstration of competency as described in a work process schedule.

JOURNEYWORKER: A worker who has attained a level of skill, abilities and competencies recognized within an industry as having mastered the skills and competencies required for the occupation. (Use of the term may also refer to a mentor, technician, specialist or other skilled worker who has documented sufficient skills and knowledge of an occupation, either through formal apprenticeship or through practical on-the-job experience and formal training.)

O*NET-SOC CODE: The Occupational Information Network (O*NET) codes and titles are based on the new Standard Occupational Classification (SOC) system mandated by the federal Office of Management and Budget for use in collecting statistical information on occupations. The O*NET classification uses an 8-digit O*NET-SOC code. Use of the SOC classification as a basis for the O*NET codes ensures that O*NET information can be readily linked to labor market information such as occupational employment and wage data at the national, State, and local levels.

ON-THE-JOB LEARNING (OJL): Tasks learned on-the-job in which the apprentice must become proficient before a completion certificate is awarded. The learning must be through structured, supervised work experience.

PROGRAM SPONSOR: The Sponsor in whose name the Standards of Apprenticeship will be registered, and which will have the full responsibility for administration and operation of the apprenticeship program.

PROVISIONAL REGISTRATION: Means the 1-year initial provisional approval of newly registered programs that meet the required standards for program registration, after which program approval may be made permanent, continued as provisional, or rescinded following a review by the Registration Agency, as provided for in the criteria describe in §29.3 (g) and (h).

REGISTERED APPRENTICESHIP PARTNERS INFORMATION DATA SYSTEM (RAPIDS): The Federal system which provides for the automated collection, retention, updating, retrieval and summarization of information related to apprentices and apprenticeship programs.

REGISTRATION AGENCY: Means the U.S. Department of Labor, Office of Apprenticeship that has responsibility for registering apprenticeship programs and apprentices; providing technical assistance; conducting reviews for compliance with Title 29, CFR parts 29 and 30 and quality assurance assessments.

RELATED INSTRUCTION: An organized and systematic form of instruction designed to provide the apprentice with the knowledge of the theoretical and technical subjects related to the apprentice's occupation. Such instruction may be given in a classroom, through occupational or industrial courses, or by correspondence courses of equivalent value, electronic media, or other forms of self-study approved by the Registration Agency.

STANDARDS OF APPRENTICESHIP: This entire document including all appendices and attachments hereto, and any future modifications or additions approved by the Registration Agency.

SUPERVISOR OF APPRENTICE(S): An individual designated by the program sponsor to supervise or have charge and direction of an apprentice.

TRANSFER: A shift of apprenticeship agreement from one program to another or from one employer within a program to another employer within that same program, where there is agreement between the apprentice and the affected apprenticeship committee or program sponsor.

SECTION I – PROGRAM ADMINISTRATION

Program Sponsors, at their discretion, may establish an Apprenticeship and Training Committee (ATC) to carry out the responsibilities and duties required of a Program Sponsor as described in these Standards of Apprenticeship. If an ATC is established by the Program Sponsor, a list of the membership and the areas of expertise they represent must be provided to the Registration Agency. While the Office of Apprenticeship recommends that Program Sponsors utilize the services of an ATC, a sponsor may also elect to administer the program without the services of an ATC.

Structure of the Apprenticeship and Training Committee (ATC)

A. Members of the ATC will be selected by the groups they represent.

B. Membership will be composed of representatives appointed by the Sponsor. A minimum of two members must be journeyworkers in one of the occupations covered under this program.

C. Technical Assistance - such as that from the U.S. Department of Labor, Office of Apprenticeship, State Apprenticeship Agencies, and vocational schools - may be requested to advise the ATC.

Administrative Procedures:

A. The ATC will elect a Chairperson and a Secretary, and will determine the time and place of regular meetings which will take place on a bi-monthly (*every other month*) basis.

B. The Chairperson and Secretary will have the power to vote on all questions affecting apprenticeship.

C. The Chairperson and Secretary should rotate among members of the ATC.

Responsibilities of the Apprenticeship and Training Committee:

A. Cooperate in the selection of apprentices as outlined in this program.

B. Ensure that apprentices are under written Apprenticeship Agreements and register the local apprenticeship standards and agreements with the appropriate Registration Agency.

C. Review and recommend apprenticeship activities in accordance with this program.

D. Establish the minimum standards of education and experience required of apprentices.

E. Meet at least on a bi-monthly (*every other month*) basis to review records and progress of each apprentice in training and recommend improvement or modification in training schedules, schooling and other training activities. Written minutes of the meeting will be kept.

F. Determine the quality and quantity of experience on the job which apprentices should have and to make every effort toward their obtaining it.

G. Hear and resolve all complaints of violation of Apprenticeship Agreements.

H. Arrange tests or evaluations for determining the apprentice's progress in manipulative skills and technical knowledge.

I. Maintain a record of all apprentices, showing their education, experience, and progress in learning the occupation.

J. Determine the physical fitness of qualified applicants to perform the work of the occupation that may require a medical examination prior to their employment as apprentices.

K. Advise apprentices on the need for accident prevention and provide instruction with respect to safety in the workplace.

L. Certify that apprentices have successfully completed their apprenticeship program.

M. Notify the appropriate Registration Agency of all new apprentices to be registered, credit granted, suspensions for any reason, reinstatements, extensions, completions and cancellations with explanation of causes and notice of completions of Apprenticeship Agreements.

N. Supervise all the provisions of the standards and be responsible, in general, for the successful operation of the standards by performing the duties here listed by cooperating with public and private agencies which can be of assistance by obtaining publicity to develop public support of apprenticeship and by keeping in constant touch with all parties concerned; apprentices, employers and journeyworkers.

O. Provide apprentices with a copy of the written rules and policies and the apprentice will sign an acknowledgment receipt of same. This procedure will be followed whenever revisions or modifications are made to the rules and policies.

SECTION II - EQUAL OPPORTUNITY PLEDGE – Title 29 CFR 29.5(b)(21) and 30.3(b)

The recruitment, selection, employment, and training of apprentices during their apprenticeship, shall be without discrimination because of race, color, religion, national origin, or sex. The Sponsor will take affirmative action to provide equal opportunity in apprenticeship and will operate the apprenticeship program as required under Title 29 of the Code of Federal Regulations (CFR), part 30, as amended.

SECTION III - AFFIRMATIVE ACTION PLAN – Title 29 CFR 29.5(b)(21) and 30.4

If the Sponsor employs five or more apprentices, the Sponsor will adopt an Affirmative Action Plan and Selection Procedures as required under Title 29, CFR part 30. It will be attached as Appendix C.

SECTION IV- QUALIFICATIONS FOR APPRENTICESHIP – Title 29 CFR 29.5(b)(10)

Applicants will meet the following minimum qualifications:

A. Age

Apprentices must not be less than 18 years of age.

B. Education

A high school diploma or GED equivalency, a composite score on the ACT of at least 18, or minimum Accuplacer test scores in math and reading is required. Applicant must provide an official transcript(s) for high school and post high school education and training. All GED records must be submitted if applicable.

Applicants must submit a DD-214 to verify military training and/or experience if they are a veteran and wish to receive consideration for such training/experience.

C. Physical

Applicants will be physically capable of performing the essential functions of the apprenticeship program, with or without a reasonable accommodation, and without posing a direct threat to the health and safety of the individual or others.

D. Other

Applicants must have reliable transportation to and from work and related instruction.

SECTION V - SELECTION OF APPRENTICES – Title 29 CFR 30.5

Selection into the apprenticeship program will be in accordance with the selection procedures made a part of these Standards (Appendix D).

SECTION VI - APPRENTICESHIP AGREEMENT – Title 29 CFR 29.3(d) and (e) and 29.5(b)(11)

After an applicant for apprenticeship has been selected, but before employment as an apprentice or enrollment in related instruction, the apprentice will be covered by a written Apprenticeship Agreement (Appendix B) signed by the Sponsor and the apprentice and approved by and registered with the Registration Agency. Such agreement will contain a statement making the terms and conditions of these standards a part of the agreement as though expressly written therein. A copy of each Apprenticeship Agreement will be furnished to the apprentice, the Sponsor, the Registration Agency, and the employer. An additional copy will be provided to the Veteran's State Approving Agency for those veteran apprentices desiring access to any benefits to which they are entitled.

Prior to signing the Apprenticeship Agreement, each selected applicant will be given an opportunity to read and review these Standards, the Sponsor's written rules and policies and the Apprenticeship Agreement.

The Registration Agency will be advised within forty-five (45) days of the execution of each Apprenticeship Agreement and will be given all the information required for registering the apprentice.

SECTION VII - RATIO OF APPRENTICES TO JOURNEYWORKERS – Title 29 CFR 29.5(b)(7)

A numeric ratio of apprentices to journeyworkers consistent with proper supervision, training, safety and continuity of employment throughout the apprenticeship, the ratio of apprentices to journeyworkers will be one (1) apprentice to one (1) journeyworker, with the option for extending the ratio (as circumstances dictate) to the following: two (2) apprentices to one (1) journeyworker. The ratio language must be specific and clearly described as to its application on the job site, workforce, department or plant.

SECTION VIII - TERM OF APPRENTICESHIP – Title 29 CFR 29.5(b)(2)

The term of the occupation will be two years with an (OJL) attainment of 3712 hours, supplemented by the required 288 hours of related instruction as stated on the Work Process Schedule and Related Instruction Outline (Appendix A). Full credit will be given for the probationary period.

SECTION IX - PROBATIONARY PERIOD – Title 29 CFR 29.5(b)(8), (b)(20)

All applicants selected for apprenticeship will serve a probationary period. The probationary period cannot exceed twenty-five (25) percent of the length of the program, or one-year (1), whichever is shorter. The probationary period will be six (6) months.

During the probationary period either the apprentice or the Sponsor may terminate the Apprenticeship Agreement, without stated cause, by notifying the other party in writing. The records for each probationary apprentice will be reviewed prior to the end of the probationary period. Records may consist of periodic reports regarding progression made in both the OJL and related instruction, and any disciplinary action taken during the probationary period.

Any probationary apprentice evaluated as satisfactory after a review of the probationary period will be given full credit for the probationary period and continue in the program.

After the probationary period the Apprenticeship Agreement may be canceled at the request of the apprentice, or may be suspended or canceled by the Sponsor for reasonable cause after documented due notice to the apprentice and a reasonable opportunity for corrective action. In such cases, the Sponsor will provide written notice to the apprentice and to the Registration Agency of the final action taken.

SECTION X - HOURS OF WORK

Apprentices will generally work the same hours as journeyworkers, except that no apprentice will be allowed to work overtime if it interferes with attendance in related instruction classes.

Apprentices who do not complete the required hours of OJL during a given segment will have the term of that segment extended until the required number of hours of training are accrued.

SECTION XI - APPRENTICE WAGE PROGRESSION – Title 29 CFR 29.5(b)(5)

Apprentices will be paid a progressively increasing schedule of wages during their apprenticeship based on the acquisition of increased skill and competence on-the-job and in related instruction. Before an apprentice is advanced to the next segment of

training or to journeyworker status, the Sponsor will evaluate all progress to determine whether advancement has been earned by satisfactory performance in their OJL and in related instruction courses. In determining whether satisfactory progress has been made, the Sponsor will be guided by the work experience and related instruction records and reports.

The progressive wage schedule will be an increasing percentage of the journeyworker wage rate. The percentages that will be applied to the applicable journeyworker rate are shown on the attached Sample Work Process Schedule and Related Instruction Outline (Appendix A). In no case will the starting wages of apprentices be less than that required by any minimum wage law which may be applicable.

SECTION XII - CREDIT FOR PREVIOUS EXPERIENCE – Title 29 CFR 29.5(b)(12) and 30.4(c)(8)

The Sponsor may grant credit towards the term of apprenticeship to new apprentices who demonstrate previous acquisition of skills or knowledge equivalent to that which would be received under these Standards.

Apprentice applicants seeking credit for previous experience gained outside the supervision of the Sponsor must submit the request at the time of application and furnish such records, affidavits, and other transcripts to substantiate the claim. Applicants requesting such credit who are selected into the apprenticeship program will start at the beginning wage rate. The request for credit will be evaluated and a determination made by the Sponsor during the probationary period when actual on-the-job and related instruction performance can be examined. Prior to completion of the probationary period, the amount of credit to be awarded will be determined after review of the apprentice's previous work and training/education record and evaluation of the apprentice's performance and demonstrated skill and knowledge during the probationary period.

An apprentice granted credit will be advanced to the wage rate designated for the period to which such credit accrues. The Registration Agency will be advised of any credit granted and the wage rate to which the apprentice is advanced.

The granting of advanced standing will be uniformly applied to all apprentices.

SECTION XIII - WORK EXPERIENCE – Title 29 CFR 29.5(b)(3) and 30.8

During the apprenticeship the apprentice will receive such OJL and related instruction in all phases of the occupation necessary to develop the skill and proficiency of a skilled journeyworker. The OJL will be under the direction and guidance of the supervisor of the apprentice(s).

SECTION XIV - RELATED INSTRUCTION – Title 29 CFR 29.5(b)(4)

During each segment of training each apprentice is required to participate in coursework related to the job as outlined in Appendix A. For each occupation, the recommended term of apprenticeship will include no less than 144 hours of related instruction for the Dairy Grazier for each year of the apprenticeship. Apprentices agree to take such courses as the Sponsor deems advisable. The Sponsor will secure the instructional aids and equipment it deems necessary to provide quality instruction. In cities, towns or areas having no vocational school or other schools that can furnish related instruction; the apprentice may be required to take an alternate form of instruction that meets the approval of the Sponsor and the Registration Agency.

Apprentices *will not* be paid for hours spent attending related instruction classes.

If applicable, the Sponsor will inform each apprentice of the availability of college credit through the University of Wisconsin, Wisconsin Technical College System, and other institutions that provide related instruction in participating states.

Any apprentice who is absent from related instruction classes, unless officially excused, will satisfactorily complete all course work missed before being advanced to the next period of training. In cases of failure of an apprentice to fulfill the obligations regarding related instruction (or OJL) without due cause, the Sponsor will take appropriate disciplinary action and may terminate the Apprenticeship Agreement after due notice to the apprentice and opportunity for corrective action.

To the extent possible, related instruction will be closely correlated with the practical experience and training received on-the-job. The Sponsor will monitor and document the apprentice's progress in related instruction classes.

The Sponsor will secure competent instructors whose knowledge, experience, and ability to teach will be carefully examined and monitored.

SECTION XV - SAFETY AND HEALTH TRAINING – Title 29 CFR 29.5(b)(9)

All apprentices will receive instruction in safe and healthful work practices both on-the-job and in related instruction that are in compliance with the Occupational Safety and Health Standards promulgated by the Secretary of Labor under 29 U.S.C. 651 et seq., as amended, dated December 29, 1970, and subsequent amendments to that law, or State Standards that have been found to be at least as effective as the Federal Standards

Apprentices will be taught that accident prevention is very largely a matter of education, vigilance, and cooperation and that they should strive at all times to conduct themselves in their work to ensure their own safety and that of their fellow workers.

SECTION XVI - SUPERVISION OF APPRENTICES – Title 29 CFR 29.5(b)(14)

The Sponsor will be responsible for the training of the apprentice on the job. Apprentices will be under the general supervision of the Sponsor and under the direct supervision of the journeyworker to whom they are assigned. The supervisor of apprentice(s) designated by the employer will be responsible for the apprentice's work assignments, and will ensure the apprentice is working under the supervision of a skilled journeyworker, evaluation of work performance, and completion and submittal of progress reports to the Sponsor.

No apprentice will be allowed to work without direct journeyworker supervision.

SECTION XVII - RECORDS AND EXAMINATIONS – Title 29 CFR 29.5(b)(6)

Each apprentice may be responsible for maintaining a record of his/her work experience/training on-the-job and in related instruction and for having this record verified by his/her supervisor at the end of each week. The apprentice will authorize an effective release of their completed related instruction records from the local school authorities to the Sponsor. The record cards and all data, written records of progress evaluations, corrective and final actions pertaining to the apprenticeship, will be maintained by and will be the property of the Sponsor. This record will be included in each apprentice's record file maintained by the Sponsor.

Before each period of advancement, or at any other time when conditions warrant, the Sponsor will evaluate the apprentice's record to determine whether he/she has made satisfactory progress. If an apprentice's related instruction or on-the-job progress is found to be unsatisfactory, the Sponsor may determine whether the apprentice will continue in a probationary status, or require the apprentice to repeat a process or series of processes before advancing to the next wage classification. In such cases, the Sponsor will initiate a performance improvement plan with the apprentice.

Should it be found that the apprentice does not have the ability or desire to continue the training to become a journeyworker, the Sponsor will, after the apprentice has been given adequate assistance and opportunity for corrective action, terminate the Apprenticeship Agreement.

SECTION XVIII - MAINTENANCE OF RECORDS – Title 29 CFR 29.5(b)(23) and 30.8

The Sponsor will maintain for a period of five (5) years from the date of last action, all records relating to apprentice applications (whether selected or not), the employment and training of apprentices, and any other information relevant to the operation of the program. This includes, but is not limited to, records on the recruitment, application and selection of apprentices, and records on the apprentice's job assignments, promotions, demotions, layoffs, terminations, rate of pay, or other forms of compensation, hours of work and training, evaluations, and other relevant data. The records will permit

identification of minority and female (minority and non-minority) participants. These records will be made available on request to the Registration Agency.

SECTION XIX. - CERTIFICATE OF COMPLETION OF APPRENTICESHIP – Title 29 CFR 29.5(b)(15)

Upon satisfactory completion of the requirements of the apprenticeship program as established in these Standards, the Sponsor will so certify in writing to the Registration Agency and request that a Certificate of Completion of Apprenticeship be awarded to the completing apprentice(s). Such requests will be accompanied by the appropriate documentation for both the OJL and the related instruction as may be required by the Registration Agency.

SECTION XX - NOTICE TO REGISTRATION AGENCY – Title 29 CFR 29.3(2)(d) and (e) and 29.5(b)(19)

The Registration Agency will be notified within forty-five (45) days of all new apprentices to be registered, credit granted, suspensions for any reason, reinstatements, extensions, modifications, completions, cancellations, and terminations of Apprenticeship Agreements and causes.

SECTION XXI - CANCELLATION AND DEREGISTRATION – Title 29 CFR 29.5(b)(18) and 29.8(a)(2)

These Standards will, upon adoption by the Sponsor be submitted to the Registration Agency for approval. Such approval will be acquired before implementation of the program.

Dairy Grazing Apprenticeship reserves the right to discontinue at any time the apprenticeship program set forth herein. The Registration Agency will be notified promptly in writing of any decision to cancel the program.

Deregistration of these Standards may be initiated by the Registration Agency for failure of the Sponsor to abide by the provisions herein. Such deregistration will be in accordance with the Registration Agency's regulations and procedures.

Within fifteen (15) days of cancellation of the apprenticeship program (whether voluntary or involuntary), the *Sponsor* will notify each apprentice of the cancellation and the effect of same. This notification will conform to the requirements of Title 29, CFR part 29.8.

SECTION XXII - AMENDMENTS OR MODIFICATIONS – Title 29 CFR 29.5(b)(18)

These Standards may be amended or modified at any time by the Sponsor provided that no amendment or modification adopted will alter any Apprenticeship Agreement in force at the time without the consent of all parties. Such amendment or modification will be submitted to the Registration Agency for approval and registration prior to being placed in effect. A copy of each amendment or modification adopted will be furnished to each apprentice to whom the amendment or modification applies.

SECTION XXIII - ADJUSTING DIFFERENCES/COMPLAINT PROCEDURE – Title 29 CFR 29.5(b)(22), 29.7(k) and 30.11

The Sponsor will have full authority to supervise the enforcement of these Standards. Its decision will be final and binding on the employer, the sponsor, and the apprentice, unless otherwise noted below.

If an applicant or an apprentice believes an issue exists that adversely affects his/her participation in the apprenticeship program or violates the provisions of the Apprenticeship Agreement or Standards, relief may be sought through one or more of the following avenues, based on the nature of the issue:

Title 29 CFR 29.7(k)

The Sponsor will hear and resolve all complaints of violations concerning the Apprenticeship Agreement and the registered Apprenticeship Standards, for which written notification is received within fifteen (15) days of violations. The Sponsor will make such rulings as it deems necessary in each individual case and within thirty (30) days of receiving the written notification. Either party to the Apprenticeship Agreement may consult with the Registration Agency for an interpretation of any provision of these Standards over which differences occur. The name and address of the appropriate authority to receive, process and make disposition of complaints is: Joseph Tomandl, III, Program Director, Dairy Grazing Apprenticeship, 7234 Gad Rd, Medford, WI 54451; joe@dairygrazingapprenticeship.org; 715-560-0389.

Title 29 CFR 30.11

Any apprentice or applicant for apprenticeship who believes that he/she has been discriminated against on the basis of race, color, religion, national origin, or sex, with regard to apprenticeship or that the equal opportunity standards with respect to his/her selection have not been followed in the operation of an apprenticeship program, may personally or through an authorized representative, file a complaint with the Registration Agency or, at the apprentice or applicant's election, with the private review body established by the Program Sponsor (if applicable).

The complaint will be in writing and will be signed by the complainant. It must include the name, address, and telephone number of the person allegedly discriminated against, the Program Sponsor involved, and a brief description of the circumstances of the failure to apply equal opportunity standards.

The complaint must be filed not later than one hundred eighty (180) days from the date of the alleged discrimination or specified failure to follow the equal opportunity standards, and in the case of complaints filed directly with the review body designated by the Program Sponsor to review such complaints, any referral of such complaint by the complainant to the Registration Agency must occur within the time limitation stated above or thirty (30) days from the final decision of such review body, whichever is later. The time may be extended by the Registration Agency for good cause shown.

Complaints of discrimination in the apprenticeship program may be filed and processed under Title 29, CFR part 30, and the procedures as set forth above.

The Sponsor will provide written notice of its complaint procedure to all applicants for apprenticeship and all apprentices.

SECTION XXIV - TRANSFER OF AN APPRENTICE AND TRAINING OBLIGATION – Title 29 CFR 29.5(13)

The transfer of an apprentice between apprenticeship programs or within the apprenticeship program must be based on agreement between the apprentice and the affected apprenticeship committee or program sponsors, and must comply with the following requirements:

i. The transferring apprentice must be provided a transcript of related instruction and on-the-job learning by the committee or program sponsor;
ii. Transfer must be to the same occupation; and
iii. A new apprenticeship agreement must be executed when the transfer occurs between employers.

If an employer (Master Dairy Grazier) is unable to fulfill his/her training obligation due to lack of work or failure to conform to these Standards, the apprentice may reapply to the program to be considered for hire by another employer in accordance with the application and training procedures in Appendix D. The apprentice must receive credit from the new employer for the training already satisfactorily completed.

Because individual employers are responsible for hiring apprentices, the Sponsor cannot guarantee placement.

SECTION XXV - RESPONSIBILITIES OF THE APPRENTICE

Apprentices, having read these Standards formulated by the Sponsor and signed an Apprenticeship Agreement with the Sponsor agree to all the terms and conditions contained therein and agree to abide by the Sponsor's rules and policies, including any amendments, serve such time, perform such manual training, and study such subjects as the Sponsor may deem necessary to become a skilled Dairy Grazier.

In signing the Apprenticeship Agreement, apprentices assume the following responsibilities and obligations under the apprenticeship program:

A. Perform diligently and faithfully the work of the occupation and other pertinent duties assigned by the Sponsor and the employer in accordance with the provisions of these Standards.

B. Respect the property of the employer and abide by the working rules and regulations of the employer.

C. Attend and satisfactorily complete the required hours in the OJL and in related instruction in subjects related to the occupation as provided under these Standards.

D. Maintain and make available such records of work experience and training received on-the-job and in related instruction as may be required by the Sponsor.

E. Develop and practice safe working habits and work in such a manner as to assure his/her personal safety and that of other fellow workers.

F. Work for the employer to whom the apprentice is assigned for the completion of apprenticeship, unless reassigned to another employer or the Apprenticeship Agreement is terminated by the Sponsor.

SECTION XXVI - TECHNICAL ASSISTANCE

Technical Assistance such as that from the U.S. Department of Labor, Office of Apprenticeship, State Apprenticeship Agencies, and vocational schools—may be requested to advise the Sponsor.

The Sponsor is encouraged to invite representatives from industry, education, business, private and/or public agencies to provide consultation and advice for the successful operation of their training program.

SECTION XXVII - OFFICIAL ADOPTION OF APPRENTICESHIP STANDARDS:

Dairy Grazing Apprenticeship hereby adopts these Standards of Apprenticeship on this _____ Day of December, 2014.

_____

Signature of Sponsor

_____

Printed Name

WORK PROCESS SCHEDULE
DAIRY GRAZIER
O*NET-SOC CODE: 11-9013.02 RAPIDS CODE: 2019HY

This schedule is attached to and a part of these Standards for the above identified occupation.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be two (2) years with an OJL attainment of 3,712 hours supplemented by 288 required hours of related instruction.

2. RATIO OF APPRENTICES TO JOURNEYWORKERS

The ratio of apprentices to journeyworkers will be one (1) apprentice to one (1) journeyworker, with the option for extending the ratio (as circumstances dictate) to the following: two (2) apprentices to one (1) journeyworker.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyworker wage rate. This is a minimum compensation rate

2 Year Term Example:

1st	6 months + hours = $8.00	2nd	6 months + hours = $8.50
3rd	6 months + hours = $9.00	4th	6 months + hours = $9.50

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

The Sponsor may modify the work processes to meet local needs prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Instruction Outline)

WORK PROCESS SCHEDULE
DAIRY GRAZIER
O*NET-SOC CODE: 11-9013.02 RAPIDS CODE: 2019HY

Work Process Description	Approximate Hours (Min - Max)
Measure and manage pastures for optimal quality and quantity •Graze different cow groups according to needs •Allocate appropriate break of grass •Monitor plant health and productivity •Control weeds •Select plants, grasses, and legumes based on conditions •Overseed pastures •Renovate pastures •Calculate stocking rates •Maintain accurate pasture records •Illustrate plant and animal interactions and connections •Apply soil fertility information to pasture management decision making	800
Manage cattle appropriately-heifers/dry cows, calves, milking cows •Move and handle livestock safely •Evaluate calf needs and use current resources to meet their requirements •Maintain cattle specific records •Optimize versus maximize milk production •Establish cow breeding cycles •Manage herd health •Feed cattle •Plan for winter feeding, fall harvesting, and purchasing winter feed supplies •Develop contingency plans for weather, prices, and unknowns	800
Manage milking operations •Manage milk cow environment •Develop milking protocols •Manage milk quality •Milk cows •Perform milk testing •Maintain stock records	800
Assess dairy nutritional needs •Develop a strategy to optimize the amount of feed that comes from pasture •Develop a plan to extend the grazing season •Determine daily pasture allowance •Select quality feed •Select feed appropriate to livestock needs •Monitor feed, grain and supplemental nutrition •Store grain and supplemental feed •Maintain supplement feed records and information •Plan for winter feed needs	400

Evaluate grazing and dairy farm information for effective decision making •Acquire information from farm records •Use computer technology for dairy grazing related information gathering and analysis •Access information via the Internet and other sources •Analyze financial information related to dairy grazing operations •Analyze commodity pricing relationships for rotational dairy grazing (milk, fuel, feed) •Perform general business performance analyses based on dairy and grazing information •Manage financial resources based on budget and records •Make farm decisions based on management information systems •Adapt to circumstances or the environment based on reliable information	200
Manage soil and water resources for productivity and health •Assess soil based on type and conditions •Balance and maintain soil conditions and fertility for proper plant nutrient content •Show awareness for both organic and non-organic agronomy •Coordinate planting, plant growing seasons, and the environment with animal needs •Handle chemicals safely and in accordance with manufacturer's instructions •Manage drought conditions based on soil types •Manage water quality based on conditions •Irrigate soil for optimum productivity •Create wildlife habitats and natural areas •Apply land conservation techniques based on soil and water quality •Illustrate the interrelationships between soil health, fertility and pasture productivity •Utilize integrated pest management when needed •Manage manure •Fertilize pastures	200
Manage farm business operations profitably •Manage time effectively •Plan forward •Coordinate custom operations •Retain employees •Recruit employees •Maintain good landlord and tenant relations •Balance profitability, family goals, and rural community impact (people, neighbors and environment)	200
Optional •Evaluate organic farming operations •Assess pastures and paddock layouts •Monitor food and milk markets •Maintain grazing machinery, facilities and equipment •Other duties based on needs or interests	312
TOTAL	**3,712**

The above schedule is to include all operations and such other work as is customary in the occupation.

RELATED INSTRUCTION OUTLINE
DAIRY GRAZIER
O*NET-SOC CODE: 11-9013.02 RAPIDS CODE: 2019HY

Related Instruction Overview					
Semester	**Course Title**	**Credits/ Hours**	**Contact Hours**	**Category**	**Required?**
1 and 2	Pasture-Based Dairy and Livestock Seminar	3	45	Core Course	Yes
1	Dairy Nutrition Seminar	1	36	Core Course	Yes
2	Dairy Health Seminar	1	36	Core Course	Yes
3	Milk Quality Seminar	1	36	Core Course	Yes
4	Organic Soils, Nutrients, and Composting	1	17	Core Course	Yes
Varies	Holistic Farming and Systems Approach	0	16	Core Course	Yes
Monthly	Education Coordinator Farm Visits	0	30	Elective*	Yes
Varies	Discussion Groups/ Pasture Walks	0	48	Elective*	Yes
Varies	Farming Conferences	0	16	Elective*	As needed
Final Term	Transition to Trainer	0	8	Elective*	As needed

*Elective coursework may be modified or substituted, contingent upon the specific needs of program participants in a particular geographic region/locale and subject to approval by the state Apprenticeship Committee. Apprentices will be required to complete a total of 288 hours of related instruction prior to completion of their apprenticeship training.

Program Course Detail

Course A -- Pasture-Based Dairy and Livestock Seminar (Fall & Spring)
Semester/Year 1 and 2
Credits 3
Contact Hours 45
Total Hours 45
Category Core Course
Required Yes
Course Topic:

- economic, environmental, and agronomic principles of managed grazing
- milking center design; dairy, beef, goat and sheep production
- organic marketing and herd health
- farm selection, design and remodeling
- winter feeding and housing strategies
- goal-setting and farm enterprise development

Linked Program Outcomes:

4. Optimize pasture production
5. Design pastures and paddock layouts
6. Manage soil and water resources for productivity and health
10. Evaluate grazing, dairy, and farm related information for effective decision-making
11. Manage farm business operations profitably

Course B -- Dairy Nutrition Seminar
Semester/Year 1
Credits 1
Contact Hours 36
Total Hours 36
Category Core Course
Required Yes
Course Topics:

- roles of digestive nutrients
- nutritional requirements at various growth stages
- relationship between forage quality and nutrition
- ration balancing through calculation of feed
- dry matter intake

Linked Program Outcomes:

3. Assess dairy nutritional needs and requirements

Course C -- Dairy Health Seminar
Semester/Year 2
Credits 1 **Contact Hours** 36 **Total Hours** 36
Category Core Course
Required Yes
Course Topics:

- animal environment and adaptation,
- animal health and behavior as it relates to production and non-production species
- basic veterinary skills

Linked Program Outcomes:

1. Manage cattle appropriately including heifers/dry cows, calves, and milking cows
3. Assess dairy nutritional needs and requirements

Course D -- Milk Quality Seminar
Semester/Year 3
Credits 1
Contact Hours 36
Total Hours 36
Category Core Course
Required Yes
Course Topics:

- milking systems and components
- milk procedures
- sanitation
- diseases
- udder anatomy
- milk secretion

Linked Program Outcomes:

2. Manage milking operations
9. Evaluate traditional, organic, and grass-based food and milk markets
10. Evaluate grazing, dairy, and farm related information for effective decision-making

Course E -- Organic Soils, Nutrients, and Composting
Semester/Year 4
Credits 1
Contact Hours 17
Total Hours 17
Category Core Course
Required Yes
Course Description:

- organic matter, micro-organisms, and nutrient cycling
- composting techniques
- organic fertilizer sources
- soil fertility testing and balancing

Linked Program Outcomes:

5. Design pastures and paddock layouts
6. Manage soil and water resources for productivity and health
7. Maintain grazing machinery, facilities and equipment

Course F -- Holistic Farming and Systems Approach
Semester/Year varies
Credits 0
Contact Hours 16
Total Hours 16
Category Core Course
Required Yes
Course Description: Uses principles of Holistic Management to establish comprehensive goals for the farming operation that include quality of life, ecological, and economic factors, and gain skills in making long- and short-term decisions that lead one toward those goals.

Course G -- Education Coordinator Farm Visits
Semester/Year varies
Credits 0
Contact Hours 30
Total Hours 30
Category Elective
Required Yes
Course Description: Farm visits allow the Education Coordinator to guide the educational process as well as the mentoring relationship to ensure that expectations are clear, program requirements are being met, and concerns are addressed.

Course H -- Discussion Groups/ Pasture Walks
Semester/Year varies
Credits 0
Contact Hours 48
Total Hours 48
Category Elective
Required Yes
Course Description: Small group discussions with other graziers will explore best practices, emerging trends, new approaches to dairy production and grazing operations.

Course I – Farming Conferences
Semester/Year varies
Credits 0
Contact Hours 16
Total Hours 16
Category Elective
Required Based on need
Course Description: Local and regional farming conferences will offer workshops on a variety of topics, often addressing both production and business management issues.

Course J -- Transition to Trainer
Semester/Year Final Term
Credits 0
Contact Hours 8
Total Hours 8
Category Elective
Required Based on need
Course Description: *Transition to Trainer* is designed for all apprentices who are approaching the end of their related instruction as well as for journey level workers who are or will be training apprentices.

Program Exit Learning Outcomes

1. Manage cattle appropriately including heifers/dry cows, calves, and milking cows

   Assessment Strategies
   1. Skill demonstrations on the farm with an experienced farmer or agricultural (AG) professional observing
   2. By completing an apprenticeship journal/score card/competency checklist/job book that records your achievement of the competencies in this program
   3. By completing a standard operations procedures manual for the farm

Performance Criteria

1. Apprentice handles animals safely
2. Apprentice verifies herd health and wellness
3. Apprentice evaluates animal productivity
4. Apprentice evaluates calf needs and uses appropriate resources to meet their requirements
5. Apprentice establishes cow breeding cycles
6. Apprentice manages break of grass
7. Apprentice demonstrates cow management protocols based on need

2. Manage milking operations

Assessment Strategies

1. Skill demonstrations on the farm with an experienced farmer or AG professional observing
2. By completing an apprenticeship journal/score card/competency checklist/job book that records your achievement of the competencies in this program
3. By completing a standard operations procedures manual for the farm

Performance Criteria

1. Apprentice optimizes milk production
2. Apprentice feeds milk cows correctly
3. Apprentice implements milk cow vaccination program
4. Apprentice diagnoses milk cow illnesses
5. Apprentice treats milk cow illnesses
6. Apprentice maintains hoof health
7. Apprentice manages the milk cow environment
8. Apprentice develops milking protocols based on conditions
9. Apprentice manages milk quality
10. Apprentice milks cows following prescribed procedures
11. Apprentice accurately performs milk testing
12. Apprentice maintains stock records
13. Apprentice identifies culled cows
14. Apprentice disposes of dead stock
15. Apprentice performs all the critical steps in the correct order

3. Assess dairy nutritional needs and requirements

Assessment Strategies

1. Skill demonstrations on the farm with an experienced farmer or AG professional observing
2. By completing an apprenticeship journal/score card/competency checklist/job book that records your achievement of the competencies in this program
3. By completing a standard operations procedures manual for the farm

Performance Criteria

1. Apprentice selects quality feed based on conditions
2. Apprentice selects feed appropriate to livestock needs
3. Apprentice develops a strategy to optimize the amount of feed that comes from pasture
4. Apprentice stores grain and supplemental feed
5. Apprentice develops a plan to extend the grazing season
6. Apprentice monitors feed, grain and supplemental nutrition
7. Apprentice maintains supplement feed records and information

4. Optimize pasture production

Assessment Strategies

1. Skill demonstrations on the farm with an experienced farmer or AG professional observing
2. By completing an apprenticeship journal/score card/competency checklist/job book that records your achievement of the competencies in this program
3. By completing a standard operations procedures manual for the farm

Performance Criteria

1. Apprentice estimates pasture production volume
2. Apprentice selects plants, grasses, and legumes based on pasture conditions
3. Apprentice monitors plant health and productivity
4. Apprentice fertilizes pastures based on soil and nutritional needs
5. Apprentice applies growing cycles to pasture productivity
6. Apprentice identifies plant species, needs, and disorders
7. Apprentice controls weeds
8. Apprentice renovates and over seeds pastures
9. Apprentice manages surplus grass
10. Apprentice applies soil fertility and grazing information to decision making
11. Apprentice calculates stocking rates
12. Apprentice rations pastures productively
13. Apprentice maintains accurate pasture records

5. Design pastures and paddock layouts

Assessment Strategies

1. Skill demonstrations on the farm with an experienced farmer or AG professional observing
2. By completing an apprenticeship journal/score card/competency checklist/job book that records your achievement of the competencies in this program
3. By completing a standard operations procedures manual for the farm

Performance Criteria

1. Apprentice designs paddock layouts suitable for rotational grazing
2. Apprentice plans for, and lays out, rotational grazing fences
3. Apprentice selects appropriate rotational grazing fences based on conditions
4. Apprentice installs rotational grazing fences
5. Apprentice maintains rotational grazing fences
6. Apprentice creates plans for moving livestock and accessing paddocks/pastures
7. Apprentice moves mobile fences based on cow needs
8. Apprentice plans and assembles livestock watering systems
9. Apprentice creates plans for pasture irrigation systems when applicable

6. Manage soil and water resources for productivity and health

Assessment Strategies

1. Skill demonstrations on the farm with an experienced farmer or AG professional observing
2. By completing an apprenticeship journal/score card/competency checklist/job book that records your achievement of the competencies in this program
3. By completing a standard operations procedures manual for the farm

Performance Criteria

1. Apprentice coordinates animal needs with pasture growth and growing seasons
2. Apprentice assess soil needs based on type and conditions
3. Apprentice balances soils for proper nutrient content

4. Apprentice selects the best grasses and legumes based on soil and water conditions
5. Apprentice fertilizers pastures based on conditions
6. Apprentice handles chemicals safely and in accordance with manufacturer's instructions
7. Apprentice maintains soil conditions and fertility
8. Apprentice plans for winter feeding, fall harvesting, and purchasing winter feed supplies
9. Apprentice manages water quality based on conditions
10. Apprentice manages drought conditions based on soil types
11. Apprentice determines integrated pest management in rotational dairy grazing practices
12. Apprentice manages manure
13. Apprentice applies land conservation techniques based on soil and water quality
14. Apprentice shows awareness for both organic and non-organic agronomy

7. Maintain grazing machinery, facilities and equipment

Assessment Strategies

1. Skill demonstrations on the farm with an experienced farmer or AG professional observing
2. By completing an apprenticeship journal/score card/competency checklist/job book that records your achievement of the competencies in this program
3. By completing a standard operations procedures manual for the farm

Performance Criteria

1. Apprentice works around farm equipment safely
2. Apprentice uses appropriate personal protective equipment properly
3. Apprentice follows safety procedures and manufacturer specifications
4. Apprentice cleans and sanitizes milking facilities and equipment according to regulations
5. Apprentice maintains equipment used in rotational dairy grazing operations
6. Apprentice troubleshoots equipment malfunctions
7. Apprentice repairs equipment
8. Apprentice assists with developing specialized rotational grazing facilities and equipment based on farm layout or conditions
9. Apprentice develops winter feed storage plans and estimates winter feed storage requirements

8. Plan for organic farming operations

Assessment Strategies

1. Skill demonstrations on the farm and by developing a farm business plan for establishing organic dairy grazing operations with an experienced farmer or AG professional observing
2. By completing an apprenticeship journal/score card/competency checklist/job book that records your achievement of the competencies in this program
3. By completing a standard operations procedures manual for the farm

Performance Criteria

1. Apprentice incorporates organic cropping into rotational grazing systems
2. Apprentice acquaints self with organic rotational dairy farming
3. Apprentice adheres to organic certification and record keeping
4. Apprentice coordinates organic suppliers and resource providers
5. Apprentice evaluates organic product markets and market potential
6. Apprentice acquaints self with organic agronomy and soils

9. Evaluate traditional, organic, and grass-based food and milk markets

Assessment Strategies

1. Skill demonstrations on the farm and by collecting, organizing and reporting data related to grass finished dairy products with an experienced farmer or AG professional observing

2. By completing an apprenticeship journal/score card/competency checklist/job book that records your achievement of the competencies in this program
3. By completing a standard operations procedures manual for the farm

Performance Criteria

1. Apprentice plans for creating value added dairy products
2. Apprentice characterizes milk quality that results from rotational grazing and grass feed cows
3. Apprentice communicates the benefits of sustainable farming
4. Apprentice explains the value of grass finished milk products
5. Apprentice acquaints self with end-user needs and consumerism
6. Apprentice demonstrates being alert to global needs and market trends

10. Evaluate grazing, dairy, and farm related information for effective decision-making

Assessment Strategies

1. Skill demonstrations on the farm and by preparing a (written or verbal) response to a case study with an experienced farmer or AG professional observing
2. By completing an apprenticeship journal/score card/competency checklist/job book that records your achievement of the competencies in this program
3. By completing a standard operations procedures manual for the farm

Performance Criteria

1. Apprentice uses computer technology for dairy grazing related information gathering and analysis
2. Apprentice acquires information from farm records
3. Apprentice accesses information via the Internet and other sources
4. Apprentice analyzes financial information related to dairy grazing operations
5. Apprentice makes farm decisions based on management information systems
6. Apprentice manages money based on accurate information
7. Apprentice adapts to circumstances or the environment based on reliable information

11. Manage farm business operations profitably

Assessment Strategies

1. Skill demonstrations on the farm and by completing a written farm business plan using rotational dairy grazing practices with an experienced farmer or ag professional observing
2. By completing an apprenticeship journal/score card/competency checklist/job book that records your achievement of the competencies in this program
3. By completing a standard operations procedures manual for the farm

Performance Criteria

1. Apprentice manages time effectively
2. Apprentice plans forward
3. Apprentice coordinates custom operations
4. Apprentice analyzes commodity pricing relationships (milk, fuel, feed)
5. Apprentice performs business performance reviews based on accurate information
6. Apprentice summarizes strategies recruiting employees
7. Apprentice summarizes strategies for retaining employees
8. Apprentice maintains good landlord/tenant relations
9. Apprentice balances profitability, family goals, and rural community impact (people and the environment)
10. Apprentice develops contingency plans for weather, prices, and unknowns
11. Apprentice maintain cattle specific records

12. Work with support services

Assessment Strategies

1. Skill demonstrations on the farm and by writing a summary of support services available to dairy grazing farm owners and managers with an experienced farmer or ag professional observing
2. By completing an apprenticeship job book that records your achievement of the competencies in this program
3. By completing a standard operations procedures manual for the farm

Performance Criteria

1. Apprentice demonstrates awareness of educational, technical, and financial assistance for dairy graziers
2. Apprentice demonstrates awareness of support services available from the financial community
3. Apprentice demonstrates awareness of support services available from grazing networks, nonprofits, and dairy operators
4. Apprentice uses support services available from the technical colleges, UW, and other educational providers
5. Apprentice uses support services available from the USDA, Dept. of Natural Resources, Conservation Service and related agencies
6. Apprentice uses support services available from university extension and AG agents
7. Apprentice uses support services available from Farm Service Agency
8. Apprentice communicates information related to support services available from land conservation departments
9. Apprentice demonstrates awareness of support services available from value-added buyers
10. Apprentice communicates information related to support services available to non-English speaking workers and farms

13. Balance quality of life and family

Assessment Strategies

1. Skill demonstrations on the farm with an experienced farmer or AG professional mentoring
2. By completing an apprenticeship journal/score card/competency checklist/job book that records your achievement of the competencies in this program with the use of references and family/community resources
3. By completing a standard operations procedures manual for the farm

Performance Criteria

1. Apprentice provides for family safety and security
2. Apprentice accepts responsibility for family health and well being
3. Apprentice communicates farm and family information effectively
4. Apprentice accepts responsibility for communication and social skills
5. Apprentice demonstrates effective relationships with neighbors and others in the community
6. Apprentice allocates time for recreational opportunities
7. Apprentice creates farm family goals and objectives

Financial Performance of Journey Dairy Graziers Getting Started Dairying

Comparing the New Graziers to Contemporary Established Graziers and other Wisconsin Dairies

Background:

In 2014 the Dairy Grazing Apprenticeship (DGA) received funding from the NRCS Conservation Innovation Grants program (CIG) to support the project – Transferring Innovative Managed Grazing Skills to Beginning Wisconsin Dairy Producers. The objective of the project was: To use an apprenticeship model to train next-generation farmers in managed dairy grazing, an environmentally positive practice in which livestock are rotated through paddocks of high quality grasses and legumes that are allowed to rest and grow.

There were eight different deliverables associated with the grant, two of which had to do with the creation of some case examples, including financial performance, of four different types of transition/entry models that apprentices who have come out of the program and become journey graziers have used to start their own farms. While DGA still has this as a long term goal as the program continues to evolve beyond the grant, at this time only four different farms have gotten started. One of the new start-ups used a land contract to enter the business but was uncomfortable sharing their financial information. The remaining three farms were willing to share their information as long as we could assure them of some degree of anonymity. All three of the farms used the same type of transition approach: purchase their cow herd and a limited amount of equipment using a Farm Service Agency (FSA) Beginning Farmer Loan, and enter into a lease arrangement with an existing farm owner. This is a very common entry model used in Wisconsin so the numbers shared and the lessons learned will be very helpful in guiding others who choose this path.

Materials and Methods:

The methodology and software used for this project was the same for all three farms. At the end of each year that the Journey Graziers have been involved in this project, they shared their tax return information (Form 1040F) and any changes in the value of livestock, feed on hand and current asset and liability accounts providing an accrual adjustment to their cash accounting. These numbers were then entered into an Excel spreadsheet that created two reports; a Cost of Producing Milk per Hundredweight Equivalent (CWT EQ) created by University of Wisconsin Extension Economist Gary Frank (available at the UW-Madison Center for Dairy Profitability website – http://cdp.wisc.edu) (Spreadsheets 1-4) and a dairy enterprise budget that can be used to do financial projections using the Center for Farm Financial Management Finpack farm financial analysis and planning software (Table 1).

At the same time that we collected the data, each of the graziers were asked what challenges they faced in achieving their goals for the previous year and what they planned to do to change them.

An important part of the annual financial checkup has been comparing how these new graziers compared to their contemporaries in Wisconsin using data from the Agricultural Financial Advisor (AgFA) financial benchmarks at the University of Wisconsin. Each year farm financial advisors and tax preparers from around Wisconsin, as well as a number of other states, enter farm financial information into the UW-Madison Center for Dairy Profitability (CDP) online Agricultural Financial Advisor (AgFA) program, https://cdp.wisc.edu/AgFA.htm. From this data the CDP is able to develop financial benchmarks that anyone can access online. Users can choose from a wide variety of parameters in order to look at benchmarks for the types of farms, dairy or otherwise, they are interested in. In working with the new graziers we looked at three different benchmark reports (Spreadsheets 1-3). In Spreadsheet 1 we see the dairy farms in Wisconsin, from 2012-2015, that were from 1 to 300 cows. This included all dairy

farming systems over the four year period of time we were collecting the Journey Grazier's data. There were 1138 individual annual farm records over the 4 years (about 300 farm records per year) and their average herd size was 105 cows. The second benchmark (Spreadsheet 2) was for farms with the same parameters except we sorted for farms that said they used Management Intensive Rotational Grazing (MIRG) and were not organic. Since the number of farms reporting their financial information so far in 2015 was very low, for anonymity purposes the AgFA Benchmarks report wouldn't include 2015, however we did have 28 individual farm records for 2012-2014 (about 9 per year) that could be averaged together. The average herd size for the graziers in those three years was 84 cows. The final benchmark report (Spreadsheet 3) was the same as Spreadsheet 1 except it was for the years 2012-2014 so it could provide a comparison between all of the dairies in that size range for those years and the subset of MIRG dairies.

Since the Journey Graziers did not want their personal information shared but were willing to share data that might be useful to others, all the years and farms were added together and their averages used. While this method masks the differences between farms and years that may provide some useful "lessons learned" information, it does smooth out those differences and still provides some good starting points for others to use in creating start-up budgets. Also, because of we are only dealing with three farms in the very early stages of their development, it was decided not to include the interest and depreciation costs for the Journey graziers in the calculations. As will be discussed in the notes that follow, keeping out these numbers does not interfere with calculating their basic cost of production.

Notes on the Cost of Producing Milk per Hundredweight Equivalent (CWT EQ) spreadsheet and comparison table:

- The per CWT EQ used as the divisor in the calculations is made up of all of the income on the dairy farms, including cull cows, calves, other income and any accrual adjustments for feed and livestock inventory over the years in question. The spreadsheet was originally developed to help dairy farmers determine how to contract the sale of their milk on farms that get nearly all of their income from the dairy herd. As the developer, Gary Frank notes in his description of the methodology, "The most meaningful divisor when calculating cost of milk production on a dairy-crop is an output (income) equivalent unit. This measure is calculated by summing the income from the sale of all products produced on the farm and then dividing by the price of milk. The resulting value is the milk production (hundredweight) required to generate an equivalent income. That is, if the farm produced only milk, how much milk would it have had to produce in order to have an identical income?" Frank goes on to note that "This method does not generate satisfactory results when cropping enterprises income exceeds 20 percent of total income." None of the farms used in any of our benchmarks or on the Journeyman Graziers farms exceeded the 20 percent level.
- The Basic Cost per CWT EQ does not include depreciation and interest; those are added back in for the Total Allocated Costs calculation. The Basic Cost per CWT EQ amount is the base cost to meet all of the current direct costs of producing milk on the farm.
- Very few dairy farms in Wisconsin keep track of financial information related to their youngstock so all costs (vet, feed, etc.) are counted against the dairy cow and income is entered as supplemental income.

<u>Results and Discussion:</u>

Financial Comparisons in Table 1 –

- In the income per cow items, the most noticeable difference between the Journeymen Graziers and both the conventional dairy farms and the MIRG dairies are in milk production. The startup graziers produced 13266 pounds of milk per cow, over 2000 pounds less established graziers and about 9000 pounds less than the benchmark dairies in Wisconsin. All three of the new graziers were milking year round but are generally referred to as spring modified seasonal herds, with about two thirds freshening in the spring. The level they were producing at would be more typical of a fully spring seasonal herd. All had originally budgeted to be closer to 15,000 pounds in production.

- On the expense side, on a per cow basis, their direct production costs were very similar to both the conventional and MIRG dairies and are very close to what all of them had originally budgeted when they got started. It is when we move to a per CWT EQ basis that the differences show up.
- On a per CWT EQ basis, the Basic Cost to produce a CWT EQ of milk was $17.16 for the start-up dairies, which was $4.53 more than the Wisconsin benchmark dairies and $2.71 more than the established MIRG dairies. After meeting those basic costs they only had $440 per cow left over to meet all of their other financial obligations.
- On their greatest single cost per CWT EQ, purchased feed, the Journeymen Graziers were actually not all that far off from the established MIRG dairies, $7.99 versus $7.04; but they were $3.71 higher than the benchmark dairies.
- While there are lots of other differences that can be seen from the various spreadsheets, the only other one to be noted at this time is the Rent or Lease for Land & Buildings. As would be expected, these Journey Graziers are leasing their farms so that item would be expected to be higher than other farms on a per CWT EQ basis. In our study the new leasing dairy farmers were paying about a dollar more per CWT EQ than established MIRG Dairies and about double what conventional dairies were paying.
- It should be noted in the Bedding line item of the Per Cow Enterprise Budget for Finpack Planning, there is no amount shown for bedding for any of the benchmark dairies, . That line item was not included in the AgFA reports while the Journey Graziers were keeping track of it. It can be a large cost so others who use this data may want to keep track of it.
- In looking at the numbers in Table 1, if the Journeymen Graziers could have hit their production targets they would have been able to have achieved very similar financial results to the established MIRG dairies.

Lessons Learned:

- The numbers that are reported here are combined so they mask many of the difference between the farms. All three of the Journey Graziers faced different challenges when it has come to getting the financial performance that they would have liked to have had. The biggest challenge facing these newcomers were the facilities they had to work with:
    - One of the new farmers took on a farm that had a good grazing system laid out but it was new and the sward had not matured to a point where it was dependable, which meant feed costs were higher than expected in the beginning. The other challenge they faced was having an undersized parlor which meant the cows were standing and waiting to be milked rather than grazing or relaxing and ruminating so feed utilization was below what was hoped for.
    - Another Journeyman started grazing on pastures and lanes that were poorly developed so keeping good feed in front of the cows was a challenge. During their startup phase feed prices were quite high and they weren't able to get the quality of forages that they would have liked.
    - The third new grazier has actually been right on track for production and feed costs because he took over an established grazing farm that was sized and priced for the size herd that he was able to buy and get started with.
- While all three of these Journey Graziers mentioned a variety of small items that they wish they would have done differently at the start of their farming career, the one thing that stood out was the importance of getting going with a farm that is set up for grazing, and if it isn't, to set a rental amount that reflects the less than ideal production levels they will have to live with and/or the increased feed and labor costs.
- Two of the new graziers had made land and building investments prior to working with the apprenticeship that made it more difficult for them to adapt. While they did not say that they regretted those decisions, it did make it more challenging as they looked at options in moving forward.
- Unless the new grazier is taking over an established grazing dairy, complete with cows, it's important to err on the conservative side when making production and feed cost estimates, especially in the first 2-3 years.
- Mentor-Master support is very important for the Journey Graziers in that first year on their own. There are many little things that come up and having a network to tap into is extremely important. If that is lacking, it makes it much more challenging.

Spreadsheet 1: Benchmark Conventional Dairy Farms in Wisconsin – 2012-2015

Cost of Producing Milk

per

Hundredweight Equivalent (CWT EQ)

Name: 2012-15 Wis AgFA Farms, 1-300 Cows

Average Number of Cows in Herd	105
Total Schedule F Income	$572,640
Form 4797 Income	$33,460
Change in Feed Inventories	$7,883
Change in Breeding Livestock Inv.	$1,400
Chg in Other Current Assets	$75
Total Farm Income	$615,458
Average Milk Price	$20.05
Total Schedule F Expenses	$539,456
Change in Accouts Payable	$248
Change in Prepaid Expenses	($1,067)
Total Allocated Costs	$538,637
Total Interest Paid	$19,395
Wages & Benefits Paid	$50,451
Depreciation Claimed	$81,103

Schedule F input form and footnotes are below.

BASIC COST per CWT EQ
$12.63

Avg Basic Cost 2012-15, 1138 WI farm records, 10 to 300 cows = $12.63

Total $'s available for non-basic costs	$227,770	per cow **$ 2,169**
Total Allocated Costs per CWT EQ	**$17.55**	Goal=$1,200
Total $'s available for all unallocated costs	**$76,821**	

Opportunity Cost of operator and operator family's labor and management $39,132

Dollars of Wages and Benefits shown on Schedule F that were paid to family members $10,615

Total Allocated plus unpaid labor and management costs per CWT EQ
$18.48

Income (From Schedule F)

1	Sales of livestock and other items you bought for resale	$835	
2	Cost or other basis of livestock and other items reported on line 1.	$0	
3	Subtract line 2 from line 1		$835
4	Sales of livestock, produce, grains, and other products you raised.		$538,597
5a	Total cooperative distributions.		$4,858
6a	Agricultural program payments.		$10,847
7	Commodity Credit Corporation (CCC) Loans.		$0
8	Crop insurance proceeds and certain disaster payments.		$4,287
9	Custom hire (machine work) income.		$5,902
10	Other income, including Federal and state gasoline or fule tax credit or refund.		$7,314
11	Gross Income. Add amounts in the right column for lines 3 through 10.		$572, 640

***** Not correct if all income has not been entered. *****

	Expense (From Schedule F)		Your cost Per Cwt Eq	AgFA 2012-15				Your cost Per Cwt Eq	AgFA 2012-15
12	Car and truck expenses.	$2,621	**$0.09**	*$0.09*	24	Labor hired.	$39,027	**$1.27**	*$1.27*
13	Chemicals.	$9,097	**$0.30**	*$0.30*	25	Pension and profit sharing	$64	**$0.00**	*$0.00*
14	Conservation expenses.	$581	**$0.02**	*$0.02*	26a	Rent or lease (equipment).	$1,759	**$0.06**	*$0.06*
15	Custom hire (machine work).	$20,525	**$0.67**	*$0.67*	26b	Rent or lease (other).	$19,856	**$0.65**	*$0.65*
16	Total Depreciation.	$81,103	**$2.64**	*$2.64*	27	Repairs and maintenance.	$33,271	**$1.08**	*$1.08*
16A	Lstock Depreciation	$7,270	**$0.24**	*$0.24*	28	Seeds and plants purchas	$22,276	**$0.73**	*$0.73*
17	Employee benefit programs.	$11,360	**$0.37**	*$0.37*	29	Storage and warehousing.	$20	**$0.00**	*$0.00*
18	Feed purchased.	$131,232	**$4.28**	*$4.28*	30	Supplies purchased.	$17,244	**$0.56**	*$0.56*
19	Fertilizers and lime.	$25,702	**$0.84**	*$0.84*	31	Taxes.	$5,368	**$0.17**	*$0.17*
20	Freight and trucking.	$5,333	**$0.17**	*$0.17*	32	Utilities.	$13,826	**$0.45**	*$0.45*
21	Gasoline, fuel, and oil.	$21,198	**$0.69**	*$0.69*	33	Veterinary, breeding, and	$20,340	**$0.66**	*$0.66*
22	Insurance (other than health)	$8,703	**$0.28**	*$0.28*	34	Other expenses.	$29,555	**$0.96**	*$0.96*
23a	Mortgage interest.	$9,316	**$0.30**	*$0.30*					
23b	Other interest.	$10,079	**$0.33**	*$0.33*					

35	Total expenses. Add lines 12 through 34.	$539,456
36	Net farm profit or (loss). Subtract line 35 from line 11.	$33,184

Spreadsheet 2:
Benchmark Non-Organic Management Intensive Rotational Grazing Farms in Wisconsin 2012-2014

Cost of Producing Milk

per

Hundredweight Equivalent (CWT EQ)

Name: 2012-14: 28 Non-Organic MIRG Dairies

Average Number of Cows in Herd 84

Total Schedule F Income	$320,324
Form 4797 Income	$20,516
Change in Feed Inventories	$12,265
Change in Breeding Livestock Inv.	($4,384)
Chg in Other Current Assets	($160)
Total Farm Income	$348,561
Average Milk Price	$22.56
Total Schedule F Expenses	$286,861
Change in Accouts Payable	($658)
Change in Prepaid Expenses	($715)
Total Allocated Costs	$285,488
Total Interest Paid	$12,556
Wages & Benefits Paid	$17,237
Depreciation Claimed	$32,457

Schedule F input form and footnotes are below.

BASIC COST per CWT EQ
$14.45

Avg Basic Cost 2012-14, 943 WI farm records, 10 to 300 cows = $13.17

Total $'s available for non-basic costs	$125,323	per cow **$ 1,492**
Total Allocated Costs per CWT EQ	**$18.47**	Goal=$1,200
Total $'s available for all unallocated costs	**$63,073**	

Opportunity Cost of operator and operator family's labor and management $39,132

Dollars of Wages and Benefits shown on Schedule F that were paid to family members $0

Total Allocated plus unpaid labor and management costs per CWT EQ
$21.01

Income (From Schedule F)

1	Sales of livestock and other items you bought for resale	$0
2	Cost or other basis of livestock and other items reported on line 1.	$0
3	Subtract line 2 from line 1	$0
4	Sales of livestock, produce, grains, and other products you raised.	$306,883
5a	Total cooperative distributions.	$2,170
6a	Agricultural program payments.	$7,146
7	Commodity Credit Corporation (CCC) Loans.	$0
8	Crop insurance proceeds and certain disaster payments.	$1,296
9	Custom hire (machine work) income.	$1,132
10	Other income, including Federal and state gasoline or fule tax credit or refund.	$1,697
11	Gross Income. Add amounts in the right column for lines 3 through 10.	$320, 324

*** Not correct if all income has not been entered. ***

	Expense (From Schedule F)		Your cost Per Cwt Eq	AgFA 2012-14			Your cost Per Cwt Eq	AgFA 2012-14
12	Car and truck expenses.	$2,701	**$0.17**	*$0.09*	24	Labor hired. $13,830	**$0.89**	*$1.35*
13	Chemicals.	$1,975	**$0.13**	*$0.30*	25	Pension and profit sharing $0	**$0.00**	*$0.00*
14	Conservation expenses.	$0	**$0.00**	*$0.03*	26a	Rent or lease (equipment). $1,004	**$0.06**	*$0.06*
15	Custom hire (machine work).	$14,802	**$0.96**	*$0.70*	26b	Rent or lease (other). $5,735	**$0.37**	*$0.64*
16	Total Depreciation.	$32,457	**$2.10**	*$2.79*	27	Repairs and maintenance. $14,447	**$0.93**	*$1.10*
16A	Lstock Depreciation	$2,449	**$0.16**	*$0.26*	28	Seeds and plants purchas $6,379	**$0.41**	*$0.76*
17	Employee benefit programs.	$3,407	**$0.22**	*$0.40*	29	Storage and warehousing. $127	**$0.01**	*$0.00*
18	Feed purchased.	$108,861	**$7.04**	*$4.57*	30	Supplies purchased. $13,364	**$0.86**	*$0.60*
19	Fertilizers and lime.	$6,867	**$0.44**	*$0.88*	31	Taxes. $3,803	**$0.25**	*$0.19*
20	Freight and trucking.	$2,435	**$0.16**	*$0.18*	32	Utilities. $7,736	**$0.50**	*$0.47*
21	Gasoline, fuel, and oil.	$12,794	**$0.83**	*$0.77*	33	Veterinary, breeding, and $8,201	**$0.53**	*$0.68*
22	Insurance (other than health)	$4,375	**$0.28**	*$0.29*	34	Other expenses. $9,005	**$0.58**	*$0.99*
23a	Mortgage interest.	$9,187	**$0.59**	*$0.32*				
23b	Other interest.	$3,369	**$0.22**	*$0.35*				

35	Total expenses. Add lines 12 through 34.	$286,861
36	Net farm profit or (loss). Subtract line 35 from line 11.	$33,463

Spreadsheet 3: Benchmark Conventional Dairy Farms in Wisconsin – 2012-2014

Cost of Producing Milk

per

Hundredweight Equivalent (CWT EQ)

Name: 2012-14 Wis AgFA Farms, 1-300 Cows

Average Number of Cows in Herd	104
Total Schedule F Income	$580,866
Form 4797 Income	$32,028
Change in Feed Inventories	$4,747
Change in Breeding Livestock Inv.	$2,833
Chg in Other Current Assets	$1,047
Total Farm Income	$621,521
Average Milk Price	$21.16
Total Schedule F Expenses	$543,443
Change in Accouts Payable	($14)
Change in Prepaid Expenses	($3,459)
Total Allocated Costs	$539,970
Total Interest Paid	$19,705
Wages & Benefits Paid	$51,530
Depreciation Claimed	$81,834

Schedule F input form and footnotes are below.

BASIC COST per CWT EQ
$13.17

Avg Basic Cost 2012-14, 943 WI farm records, 10 to 300 cows = $13.17

Total $'s available for non-basic costs	$234,620	per cow **$ 2,256**
Total Allocated Costs per CWT EQ	**$18.39**	Goal=$1,200
Total $'s available for all unallocated costs	**$81,551**	

Opportunity Cost of operator and operator family's labor and management $39,132

Dollars of Wages and Benefits shown on Schedule F that were paid to family members $11,989

Total Allocated plus unpaid labor and management costs per CWT EQ
$19.31

Income (From Schedule F)

1	Sales of livestock and other items you bought for resale	$888
2	Cost or other basis of livestock and other items reported on line 1	$0
3	Subtract line 2 from line 1	$888
4	Sales of livestock, produce, grains, and other products you raised	$548,321
5a	Total cooperative distributions	$4,501
6a	Agricultural program payments	$10,737
7	Commodity Credit Corporation (CCC) Loans	$0
8	Crop insurance proceeds and certain disaster payments	$3,753
9	Custom hire (machine work) income	$6,436
10	Other income, including Federal and state gasoline or fule tax credit or refund	$6,230
11	Gross Income. Add amounts in the right column for lines 3 through 10	$580,866

*** Not correct if all income has not been entered. ***

Expense (From Schedule F)		Your cost Per Cwt Eq	AgFA 2012-14
12 Car and truck expenses	$2,655	**$0.09**	*$0.09*
13 Chemicals	$8,805	**$0.30**	*$0.30*
14 Conservation expenses	$815	**$0.03**	*$0.03*
15 Custom hire (machine work)	$20,505	**$0.70**	*$0.70*
16 Total Depreciation	$81,834	**$2.79**	*$2.79*
16A Lstock Depreciation	$7,650	**$0.26**	*$0.26*
17 Employee benefit programs	$11,872	**$0.40**	*$0.40*
18 Feed purchased	$134,098	**$4.57**	*$4.57*
19 Fertilizers and lime	$25,969	**$0.88**	*$0.88*
20 Freight and trucking	$5,317	**$0.18**	*$0.18*
21 Gasoline, fuel, and oil	$22,700	**$0.77**	*$0.77*
22 Insurance (other than health)	$8,472	**$0.29**	*$0.29*
23a Mortgage interest	$9,393	**$0.32**	*$0.32*
23b Other interest	$10,312	**$0.35**	*$0.35*
24 Labor hired	$39,604	**$1.35**	*$1.35*
25 Pension and profit sharing	$54	**$0.00**	*$0.00*
26a Rent or lease (equipment)	$1,698	**$0.06**	*$0.06*
26b Rent or lease (other)	$18,847	**$0.64**	*$0.64*
27 Repairs and maintenance	$32,289	**$1.10**	*$1.10*
28 Seeds and plants purchas	$22,179	**$0.76**	*$0.76*
29 Storage and warehousing	$17	**$0.00**	*$0.00*
30 Supplies purchased	$17,737	**$0.60**	*$0.60*
31 Taxes	$5,433	**$0.19**	*$0.19*
32 Utilities	$13,736	**$0.47**	*$0.47*
33 Veterinary, breeding, and r	$20,110	**$0.68**	*$0.68*
34 Other expenses	$28,992	**$0.99**	*$0.99*

35	Total expenses. Add lines 12 through 34	$543,443
36	Net farm profit or (loss). Subtract line 35 from line 11	$37,423

Spreadsheet 4: Journey Dairy Graziers Financial Performance – 2012-2015

Cost of Producing Milk

per

Hundredweight Equivalent (CWT EQ)

Name: Journeymen Graziers

Average Number of Cows in Herd		62
Total Schedule F Income	$173,076	
Form 4797 Income	$11,867	
Change in Feed Inventories	$5,352	
Change in Breeding Livestock Inv.	$4,759	
Chg in Other Current Assets	$268	
Total Farm Income	$195,322	
Average Milk Price	$19.96	
Total Schedule F Expenses	$175,175	
Change in Accouts Payable	$1,396	
Change in Prepaid Expenses	($11)	
Total Allocated Costs	$176,582	
Total Interest Paid	$0	
Wages & Benefits Paid	$8,686	
Depreciation Claimed	$0	

Schedule F input form and footnotes are below.

BASIC COST per CWT EQ	
$17.16	

Avg Basic Cost 2012-15, 1138 WI farm records,10 to 300 cows = $12.63

Total $'s available for non-basic costs	$27,426	per cow **$ 440**
Total Allocated Costs per CWT EQ	**$18.04**	Goal=$1,200
Total $'s available for all unallocated costs	**$18,740**	

Opportunity Cost of operator and operator family's labor and management $39,132

Dollars of Wages and Benefits shown on Schedule F that were paid to family members $0

Total Allocated plus unpaid labor and management costs per CWT EQ	**$22.04**

Income (From Schedule F)

1	Sales of livestock and other items you bought for resale	$164
2	Cost or other basis of livestock and other items reported on line 1.	$0
3	Subtract line 2 from line 1	$164
4	Sales of livestock, produce, grains, and other products you raised.	$170,772
5a	Total cooperative distributions.	$42
6a	Agricultural program payments.	$1,600
7	Commodity Credit Corporation (CCC) Loans.	$0
8	Crop insurance proceeds and certain disaster payments.	$0
9	Custom hire (machine work) income.	$0
10	Other income, including Federal and state gasoline or fule tax credit or refund.	$499
11	Gross Income. Add amounts in the right column for lines 3 through 10.	$173, 076

Expense (From Schedule F)		Your cost Per Cwt Eq	*** Not correct if all income has not been entered. *** AgFA 2012-15			Your cost Per Cwt Eq	AgFA 2012-15
12 Car and truck expenses.	$1,237	**$0.13**	*$0.09*	24 Labor hired.	$8,686	**$0.89**	*$1.35*
13 Chemicals.	$1,922	**$0.20**	*$0.30*	25 Pension and profit sharing	$0	**$0.00**	*$0.00*
14 Conservation expenses.	$705	**$0.07**	*$0.03*	26a Rent or lease (equipment).	$1,327	**$0.14**	*$0.06*
15 Custom hire (machine work).	$14,254	**$1.46**	*$0.70*	26b Rent or lease (other).	$12,780	**$1.31**	*$0.64*
16 Total Depreciation.	$0	**$0.00**	*$2.79*	27 Repairs and maintenance.	$6,769	**$0.69**	*$1.10*
16A Lstock Depreciation	$0	**$0.00**	*$0.26*	28 Seeds and plants purchas	$2,620	**$0.27**	*$0.76*
17 Employee benefit programs.	$0	**$0.00**	*$0.40*	29 Storage and warehousing.	$0	**$0.00**	*$0.00*
18 Feed purchased.	$78,197	**$7.99**	*$4.57*	30 Supplies purchased.	$8,122	**$0.83**	*$0.60*
19 Fertilizers and lime.	$2,533	**$0.26**	*$0.88*	31 Taxes.	$4,367	**$0.45**	*$0.19*
20 Freight and trucking.	$869	**$0.09**	*$0.18*	32 Utilities.	$6,201	**$0.63**	*$0.47*
21 Gasoline, fuel, and oil.	$6,997	**$0.71**	*$0.77*	33 Veterinary, breeding, and	$8,515	**$0.87**	*$0.68*
22 Insurance (other than health)	$1,629	**$0.17**	*$0.29*	34 Other expenses.	$7,445	**$0.76**	*$0.99*
23a Mortgage interest.	$0	**$0.00**	*$0.32*				
23b Other interest.	$0	**$0.00**	*$0.35*				

35	Total expenses. Add lines 12 through 34.	$175,175
36	Net farm profit or (loss). Subtract line 35 from line 11.	($2,098)

Table 1: Comparison of Journey Dairy Graziers with Wisconsin Benchmark Dairies

PER COW ENTERPRISE BUDGET FOR FINPACK PLANNING			
Journeymen Graziers		2012-15 AgFA WI Dairy Farms	2012-14 AgFA WI Non-Org MIRG Farms
Number of cows	62	105	84
Income Per Cow			
Quantity - Pounds milk	13266	22294	15566
Price (cwt)	$19.96	$20.05	$22.56
Product	$2,647.60	$4,470.49	$3,511.21
Cull	$190.38	$318.67	$244.24
Miscellaneous	$92.06	$148.59	$124.68
Total Income:	**$2,930.03**	**$4,937.75**	**$3,880.13**
Expenses Per Cow			
Purchased feed	$1,254.50	$1,249.83	$1,295.96
Breeding fees	$35.83	$69.98	$41.44
Veterinary	$100.76	$124.04	$56.19
Supplies	$68.29	$65.70	$63.64
Marketing	$26.02	$38.37	$30.15
Bedding	$20.31	$0.00	$0.00
Total Expenses:	**$1,505.73**	**$1,547.92**	**$1,487.38**
Net Income:	**$1,424.31**	**$3,389.83**	**$2,392.75**
Total Crop Acres per Cow:	2.19	3.47	2.74
Pasture Acres per Cow:	1.43	0.50	1.26
PER HUNDRED WEIGHT EQUIVALENTS COMPARISON			
Basic Cost	$ 17.16	$ 12.63	$ 14.45
$'s Available for non Basic Costs	$ 440	$ 2,169.00	$ 1,492.00
Purchased Feed	$ 7.99	$ 4.28	$ 7.04
Rent Or Lease - Equipment	$ 0.14	$ 0.06	$ 0.06
Rent Or Lease - Land & Bldgs	$ 1.31	$ 0.65	$ 0.37

Learning Ways To Strengthen The Bottom Line

By Raylene Nickel

Nate Peplinski, 33, has been dairying near Stevens Point, Wisconsin, for nearly as long as he can remember. Born the youngest of seven children, by the age of 6 he was feeding calves for his dairy-farmer father. By the time he was 14, Nate was doing much of the milking.

The work of his youth instilled a love of dairying that stuck with him beyond his college years. After earning an animal science degree from the University of Wisconsin-Platteville, he went to work for a dairy farmer near Mount Horeb, Wisconsin. "I got dairying in my blood, and I couldn't get away from it," he says.

That's why he jumped at a chance to buy his father's dairy cows and take over his parents' conventional dairy when the opportunity seemed right in 2006. But he bought the herd of 100 cows on the high end of the market, when milk prices were a strong $17 a hundredweight. Four years later the price of milk plunged to $9 a hundredweight, and the value of dairy cows dropped 70 percent.

"I had no equity to help support the debt, and I had to sell out," he says.

There followed a two-year period of working at a job in town. It was a time, of course, filled with reflection. Considering the financial difficulties he'd endured and temptations for discouragement, he might have given up his dream and put dairying out of his mind.

But he hung on, and when opportunity knocked again, he opened the door. Today, after graduating from the Dairy Grazing Apprenticeship (DGA) program, he works fulltime for DGA Master Dairy Grazier Paul Onan, whose grass-based dairy lies just three miles from Nate's home place, where he continues to live. His earlier experience with managing a conventional dairy gives him keen insights into the benefits of grass-based dairying.

Paul, too, has his own story of perseverance to tell. A longtime grass-based dairy producer who helped found DGA, Paul, 65, has clung tenaciously to his vision of helping a Dairy Grazing Apprentice like Nate build a dairying life on his farm and with the herd he built. Nate is his third Apprentice candidate, the only one to graduate from DGA and show continuing promise as a successor to Paul's farm.

Master Grazier
Paul Onan

Apprentice
Nathan Peplinski

Location
Amherst Junction, WI

"I finally let the cows out of the barn, and they started grazing – harvesting their own feed. Life got so easy, I added cows to the herd to take up my time!"

- Nate

Nate's earlier financial experiences with conventional management meant he paid particularly close attention to aspects of grazing based dairying that make it a cost effective, economically resilient production system.

DAIRY GRAZING APPRENTICESHIP

Steps to Nate's Journey Toward Grass-Based Dairying

Studied his strengths. After operating as a conventional dairy producer for four years and then liquidating the herd he'd acquired, Nate worked for two years at a job in town. During this time, he thought about his options for the future. What career path should he follow? What type of work best suited him?

Insights from business consultant and author Jim Collins guided Nate's thinking about career choices or possible business starts. He wanted to pursue work he was good at, passionate about and that provided a positive financial flow.

"Then, as I was job hunting, there came a point when I realized I had 20 years of experience in one industry – dairying," he says. "I was just in my late 20s. To have that much experience at that young of an age is practically unheard of. And, not only that, but I really enjoyed dairying, and I knew I had an aptitude for it."

Enrolled in DGA. Not long after realizing he wanted to get back into dairying, Nate learned that neighboring grass-based dairy farmer Paul Onan was looking for a full-time employee. When he applied, Paul hired him on the spot.

Learning from Paul about the opportunities available through DGA, Nate enrolled in the two-year program, graduating in April 2016. "The program offered me excellent networking opportunities, and the classes I took were useful," says Nate. "Learning about managing dairy cows on grass has been particularly helpful. When I was managing my own herd, grazing wasn't on my radar because it wasn't part of my operating system."

Learned differences between systems. Working within Paul's system while enjoying the relative financial freedom of a paid employee, Nate was able to relax emotionally and study the differences between the conventional system he had once managed, and Paul's managed grazing system. Nate had previously managed his cows by conventional methods, milking in a tie-stall barn but housing cows primarily indoors, giving them limited outdoor exposure. The cows' ration was mixed from mechanically harvested ingredients.

By contrast, Nate saw that cows primarily harvest their own feed in Paul's system. From early May until December cows graze 120 acres of grass/legume mix. The acreage is fenced with permanent fencing into 15-acre paddocks. Shallow piping carries water to the acreage, and temporary polywire crosswires allocate enough forage to last between each milking.

"We give the cows fresh grass by lifting the polywire with an 8-foot-long section of PVC pipe and letting them walk underneath," says Paul. "At first, heifers are reluctant to move beneath the wire, but they soon get used to it."

On rented and owned land, Paul grows alfalfa and corn for both hay and silage. He keeps the alfalfa in production for five or six years and raises corn for a year in order to give the fields a break from the alfalfa. "I buy all of the grain we feed to the cows," he says.

Paul and Nate now milk 130 cows in a swing-14 parlor. Eighty free stalls and an outside bedded pack provide overwintering facilities. Young stock and dry cows are outwintered.

Paul's present managed grazing system differs greatly from the conventional practices he used when he first started dairying in the early 1990s. Even at that early point in his career he found his conventional production system an uncomfortable fit. "Back then, I was running 30 to 40 cows in confinement feeding them every day and hauling the manure away," he says. "One year, I had rented 35 acres of standing hay because I was running short of feed. To get the hay put up, I worked until 1 a.m. one night, and I finished haying that morning feeling frustrated with my system."

While grazing-based dairying was then more uncommon than it is now, Paul had been reading about producers who were having good success with it. It was a system that made sense to him. "For two years I went to grazing conferences, and I thought about how I was going to do things," he says. "And then the day came when I finally let the cows out of the barn, and they started grazing – harvesting their own feed. Life got so easy, I added cows to the herd to take up my time!"

Hand in hand with management changes, he altered the genetics of the herd, crossbreeding his Holsteins with Jerseys. "The crossbreds have hybrid vigor, which gives them greater fertility," says Paul.

Milk production has trended downward only slightly as a result of the switch in genetics and management. Paul's milk production from cows in confinement was 21,600 pounds per cow per year. Present annual production per cow is 17,000 pounds, with much higher butterfat and protein. The cows' present ration includes 14 pounds of grain per head per day, 5 pounds of DM corn silage and all the pasture forage they can consume.

Learned to think outside the box. Hearing Paul's stories of his own journey toward grass-based dairying and while working alongside Paul within his system, Nate has learned to "think outside the box."

"When I was at home, I was a specialist," he says. "Managing conventionally, I put systems in place that are reproducible. And one can do that very well, and it can be successful – if the economic denominator is positive. But with grass-based production there are a lot more moving parts. The system is more complicated to manage. Depending on weather, for instance, feed quality often changes during the rotation."

Learning to discern these often subtle changes also brings with it the learning of multiple management reactions. "But while deciding on a course of action, you have to make sure that you don't get so involved in these day-to-day details that you lose sight of the big picture," he says.

Saw that cattle could take care of themselves. "You can do a really good job of taking care of cows in a conventional system, but all the exercise a cow gets while grazing is good for her; the cows just do better," says Nate. "I've noticed that Paul's cows are in so much better shape than those I've seen in conventional systems. In a conventional system, if a cow slips on concrete or ice, it's hard for her to get up. With Paul's cows, if they slip and fall, they just pop right back up. They're so much more muscularly fit, and that has to do with exercise and cows harvesting their own feed."

The outwintering of cattle is another way that Nate has seen that livestock can take care of themselves. "Then you don't have that enormous capital investment in bricks-and-mortar-type buildings," he says.

Learned a new economic denominator. Nate's earlier financial experiences with conventional management meant he particularly close attention to aspects of grazing based dairying that make it a cost effective, economically resilient production system. Not only has he seen an ongoing economic stability in Paul's operation, but this capacity for stability in managed grazing systems was verified by other dairy graziers participating in the discussion groups that were part of his DGA participation.

"These producers shared their financial numbers, and I found comfort in seeing that dairy producers can change the economic denominator to one that is positive," he says.

Grazing-based dairying's lower feed costs and reduced investments in equipment and facilities contribute to a relatively stable financial picture for an operation. "Feed costs are significantly lower in a grass-based system than in a conventional one," says Nate. "There's less feed to harvest mechanically, and you don't have feed-storage losses. If the cattle do waste grass or hay, they trample it into the ground, and it becomes organic matter for the 'herd' of organisms in the soil. That just makes the next crop that much better. Feed efficiency with grass-based dairying is tremendous."

When cows harvest feed and spread manure for themselves for at least six months out of the year, less fuel is consumed, of course, and there's less wear on machinery along with lowered investment in equipment. Decreased dependence on facilities, too, reduces debt and other overhead costs.

"From Paul and others in the discussion group I learned that grass-based dairying presents modest overhead costs, favorable debt-to-equity ratios and positive liquidity," says Nate. "You really only have to invest in cows and land, and that can help turn the economic denominator into one that is positive."

Exploring ways to transition into the operation. As Paul and Nate move forward with their ongoing working relationship, they are beginning to explore the possible ways that Nate might begin building ownership equity in the operation.

"If Nate does in fact begin the process of taking over the farm, we're looking at a relatively long transition," says Paul. "He would buy the cows first, probably with a milk-share agreement. We could set up an LLC – a limited liability corporation – as he increases his ownership in cows and machinery. After a five-year period, he'd gain a lot of equity in cows and machinery, and he could start buying land."

If indeed the two succeed in accomplishing the eventual transition of the farm into Nate's hands, it will be the fruition of dreams for both: for Nate, to own and manage a dairy; and for Paul, to pass a viable farm into the capable hands of a farmer who values the rhythms of grass-based dairying.

Building A Dairy From An Impossible Dream

By Raylene Nickel

While reared as a city kid in Peshtigo, Wisconsin, Andrew (Drew) Votis learned just enough about farming to know that he wanted grass-based dairying to be his career and way of life. But he well recognized his lack of practical experience.

After graduating from the University of Wisconsin-Green Bay with a degree in biology and environmental sciences, he began searching for ways to gain experience in grass-based dairying. Seeking a real-world learning environment, he made phone calls, wrote e-mails and asked questions.

His search soon led to the Dairy Grazing Apprenticeship (DGA). The fully accredited, national two-year program gives beginners the chance to gain experience while working as paid employees for established grass-based dairy producers – Master Dairy Graziers – who mentor the development of managerial skills in Dairy GRazing Apprentices.

Drew applied for a position on a dairy farm and was soon matched with Master Dairy Graziers Jim and Tammy Schreiner, Athens, Wisconsin. Two years later, on Dec. 31, 2013, Drew completed his DGA Apprenticeship with the Schreiners.

By midsummer of 2015 the grass-based dairy farm of 26-year-old Drew and his wife, Ashley, was already in full swing. Operating on a farm just seven miles down the road from the Schreiners, the young couple now own a herd of 43 cows. They rent the farm's milking facilities and pasture.

"I was very nervous in the beginning, but we made it through the first winter; now I feel a lot better," says Drew. "Milk prices went way down after we started milking. But that just made us get more efficient."

Learning the finer points of efficient grass-based dairy production was a benefit from Drew's work with the Schreiners. Yet his own willingness to pay attention and study the hallmarks of efficiency have played to his advantage as well.

From the very start of his search for a meaningful career path Drew put his aptitude for watchfulness to work. When the end of his college years drew near, pressing the need for a career choice, he thought often of his enduring interest in farming, despite the passing of time. It was back in high school that his interest first surfaced.

Master Grazier
Jim and Tammy Schreiner

Apprentice
Drew Votis

Location
Athens, WI

"I learned how to produce a good amount of high-quality milk without too many inputs."

- Drew

Maintaining excellent cow health is a critical and cost-effective goal in Drew's feeding system. By feeding primarily high-quality forages he intends for cows to produce well but not so much that their metabolic systems are stressed.

DAIRY GRAZING APPRENTICESHIP

“I really enjoyed spending time on the dairy farms where my two best friends lived,” he says. “Then, after I started dating Ashley in high school, I was able to help her grandpa with his cows.”

Later, as a college student, Drew’s coursework exposed him to the basic concepts of livestock grazing. With his farming interest further fueled, Drew applied for and completed an internship on an organic farm.

“I loved it!” he says. “The entire next semester I thought about ways I might get into grazing. I tried to figure out how I could make a good living from the grazing of livestock. I was most interested in doing some kind of polyculture, involving the grass-based raising of different kinds of animals in symbiotic ways.”

But because such systems are highly individualistic, their economic performance runs a broad, unpredictable gamut.

“I began to think that milking cows might be better for raising a family – from an economic perspective,” he says. “But I’d always been told that it was impossible to start because of the need for a large amount of start-up capital.” Thus began Drew’s studious search for the information and experiences that would unveil the answers to his questions.

Discovering the opportunities available through the DGA was pivotal to his career search. Completing an Apprenticeship under the mentorship of the Schreiners equipped Drew with the knowledge and experiences he would need to eventually test his fledgling management expertise on his own dairy operation.

While observing how knowledge and experience feed the process of making strategic, whole-farm management decisions, Drew learned subtle but critical lessons. “I tried to help him understand my reasoning behind day-to-day decisions,” says Jim Schreiner.

When apprentices and other beginning farmers like Drew invest the effort in learning the rationale behind daily management practices, they dramatically increase the odds of making good decisions in their own operations.

“A lack of experience is the biggest risk facing beginning farmers; you could inherit a million dollars, and without management skill and experience you could still lose the farm,” says grazing-based dairy farmer Joe Tomandl, III co-founder and executive director of DGA.

“We encourage DGA participants to go into the program with the idea that they’re really going to dive into their job and learn something – it’s much more than just a job,” he says. “While working with an established farmer, they have the chance to see what it could be like to be the one paying the bills. If you’re going to run your own farm, you need to be very engaged in what’s going on.”

Engagement leads to critical observations that can help managers sidestep expensive mistakes. “So often, it’s the little things – little oversights – that beginning farmers don’t take into account, that can make a real difference financially,” says Joe. “On a dairy operation, details related to time management, facility management and milk quality all add up, presenting areas where costly mistakes can be made.”

Drew paid close attention to the management steps needed to build the efficient production system he saw working so smoothly in Jim's operation.

"I learned a lot from Jim," says Drew. "Along with so many other things, I learned how to produce a good amount of high-quality milk without too many inputs. I'm doing my best to model my whole system after his, which is both practical and profitable. He doesn't use an input unless it's going to return a high margin of profit."

Building an Efficient Production System

Drew and Ashley follow these guiding practices as they build a whole-farm production system they intend to be both practical and profitable over the long term:

Invest wisely and manage debt. "We're trying to figure out how to make good investments," says Drew. "We are tending to invest in things that gain value over time. We have invested in cows, and we hope to eventually invest in land."

They presently rent a farmstead with 40 acres of pasture. The farmstead has a swing-six parlor, a loose-housing barn and an outdoor, cement-surfaced feeding strip. They rent the farm from Brad Zettler, a neighboring organic dairy farmer and grazier. "We really appreciate the help and advice he has given us," says Drew.

The young couple bought a home in the nearby town of Bern after Ashley acquired a position in Edgar as an elementary teacher. Drew commutes the seven miles to their dairy.

Managing debt by building equity in cattle slowly was a principle Drew learned firsthand while working with the Schreiners. During Drew's Apprenticeship, he had the opportunity to buy every third heifer calf that was born. The purchase price of each heifer was deducted from Drew's wages.

To compensate the Schreiners for the feed costs of these cattle, Drew paid a dollar a day per head. By the time Drew and Ashley started their dairy, the heifers they had purchased from the Schreiners' herd numbered 14. Most of these freshened after the Votises began milking on their own.

After finding a farm to rent, the Votises expanded the herd to a size providing a more economically viable scale of production. They purchased 18 dairy cows from a neighboring producer who was retiring. They also bought from the neighbor a small line of equipment including tractors and haying equipment. "We want to keep our line of machinery simple because as much as possible, we want to limit investments in equipment," says Drew.

The haying machinery lets Drew emulate Jim's practice of containing the cost of purchased feed by putting up his own hay and being as self-sufficient as possible. Drew puts up hay for his cattle as high-moisture baleage harvested from neighbors' fields. He pays a per-bale rate for the forage.

To finance the relatively modest purchases of cattle and equipment, Drew applied for and received a low-interest beginning farmer loan from the USDA Farm Service Agency. The equity the young couple had already built in cattle helped them qualify for the loan.

Provide cost-effective feed for cattle. To operate efficiently, Drew models Jim's practice of feeding cows high-quality feeds as affordably as possible. Forage is the cornerstone of the ration.

"The key is to feed highly nutritious feeds cheaply," says Drew. "Grazing is a big part of that because pasture is reasonably priced."

During the grazing season 50 percent of the dry matter in the ration comes from pasture forages, and 25 percent comes from corn silage. The remaining 25 percent comes from concentrates, with the cows receiving 16 pounds per head per day of a ration comprising half ground corn and half a mixture of soybean meal, roasted beans, distillers grain and mineral. In winter, Drew feeds the same mix but replaces the pasture with high-quality baleage.

Pasture forages vary by paddock. Intermediate ryegrass and white clover comprise much of the plant population. A recent broadcasting of Italian ryegrass further diversifies this planting. "The rest of the farm grows canary grass, June grass, and white clover," says Drew. "The June grass makes a sod that holds together really well. I don't have to worry about tearing it up or making ruts when I spread manure on the pasture."

The 40 acres of pasture is crossfenced into four paddocks. "A lane runs down the middle of the 40 acres, and there are two paddocks on each side," says Drew. "I use polywire to crossfence within the paddocks and adjust the grazing area to growing conditions. It takes 21 to 28 days to get around the whole farm in one grazing rotation."

Drew plans for his grazing season to extend from early May through early November.

Manage for a healthful level of production. Maintaining excellent cow health is a critical and cost-effective goal in Drew's feeding system. By feeding primarily high-quality forages he intends for cows to produce well but not so much that their metabolic systems are stressed. Like Jim, he thus hopes to avoid costly metabolic disorders like milk fever and ketosis.

"During the time I spent with Jim, he rarely had a sick cow in a herd of 70 cows," says Drew. "During the entire two years I was there, he had just two cows with milk fever and barely a handful with ketosis. At every other dairy I've come into contact with it seemed like nearly every cow was in danger of getting milk fever at freshening.

"Jim's cows have no calving difficulties either, and he very rarely has sick calves," says Drew. "It's extremely rare to lose a calf at his place. It's my goal, too, not to lose a calf after it's been born alive."

Maintain low-cost overwintering facilities. Overwintering cows in a loose-housing barn lets Drew keep investment in housing to a minimum while increasing cow comfort and soil organic matter levels on his farm.

"I bed cows with hay or sawdust, and the pack gives off heat," he says. "The cows eat outside at the feed strip, so they are not manuring as much on the clean bedding. I like the bedded pack as long as bedding can be found for a cheap price. It's a nice way to bring in a carbon source from off farm, compost it into a fertile product and then spread it onto my pastures. I think improving the organic matter on our farm ground is very important.

“The bedded pack is also excellent for cow comfort,” he adds. “They can get up easily; they express heats well, and when managed right, it keeps mastitis pathogens to a minimum.”

The outdoor, cement-based feeding strip provides an efficient way to reduce waste. The cement strip is 100 feet in length with a metal pipe running down the center. Drew feeds corn silage and ground feed below the pipe, which keeps cattle from trampling on the feed and soiling it with manure.

“Because of grazing in summer and wintering on a bedded pack, I believe our cows are going to last a long time,” says Drew. “We have some older cows that are doing really well.”

Learning the finer points of grass-based management from Jim and Tammy has given Drew and Ashley solid ground to find their own footing.

“We couldn’t have done this by ourselves,” says Drew. “To get started in dairying you have to have a lot of good help and a lot of good advice. You have to pay attention and don’t think you know everything. Learn as much as you can so that you’re prepared when it’s time for you to make your own decisions.”

Perhaps more than any other one thing, it’s that observing and learning of the fine art of multifaceted decision making that will make or break a beginning farmer’s chances of shaping a viable livelihood from a grass-based dairy or any farm or ranch enterprise. Mentors play a pivotal role in this learning.

“The person who pays the bills and owns and ultimately runs the business needs to help employees and apprentices understand the thought processes behind daily decision,” says Joe Tomandl. “Take time to show them why you feed what you’re feeding, for instance; why you move the cattle to certain paddocks, and how you go about deciding how much grass to allocate for a grazing period.

“We’re hoping to create from our employees future farm operators and farm owners,” he adds. “Rather than specializing in one area of the operation as they might if they worked at a large dairy, they’re learning to be big-picture people, managing cows, calves, grass and facilities in one package.”

Drew and Ashley Votis deeply appreciate such lessons learned from Jim and Tammy Schreiner. The learning has opened doors to the life they had from the outset hoped they’d find on a grass-based dairy farm. This has gained even more importance with the birth of their daughter, Amelia, in August of 2015.

“Ashley and Amelia come out to the farm every day to help me,” says Drew. “There aren’t a lot of jobs like this, where you can have your family with you while you work.”