Wisconsin Agricultural Education & Workforce Development Council

2014 Annual Report

Executive Summary

Growing Opportunities and Challenges

The Wisconsin Agricultural Education and Workforce Development Council ("Council") is charged with ensuring Wisconsin has the availability of a strong, well-educated workforce for the agriculture, food and natural resource sectors.

A modern food processing, equipment manufacturing, or farming operation can look almost like science fiction to the untrained eye. Processing plants are computer controlled, planting and harvesting equipment are guided by global positioning systems, equipment has a level of robotics application, communication is satellite based, the markets are global and must be navigated, and the equipment is expensive so productivity and income must be totally maximized. Protection of the environment and food chain are paramount. Consumer and worker safety are critical to the success and the reputation of the industry.

The agricultural, food and natural resource sectors are competing for the same future workers that many other industries in our state are recruiting, especially in the fields of Science, Technology, Engineering and Math ("STEM"). Individuals with technical degrees are also in strong demand. There are many challenges to maintaining and improving our current and future workforce, including the rapid rate of retirement now and into the near future draining the workforce of significant knowledge and experience. The average age of a farmer or producer in Wisconsin is 58, much higher than other industries. An antiquated view of typical job requirements (long hours, low pay, minimal educational requirements, etc.,) versus the reality of most jobs today must be corrected. The pool of future workers with farm backgrounds continues to shrink. Future workers must be prepared to address issues such as food security, bio-energy, nutrition enhancements, disease prevention, community and economic development, business systems and management, environmental challenges, improving production agriculture, and supporting industries. The agriculture, food and natural resource sectors are facing a worker shortage driven primarily by a skills shortage, retirements and competition from other sectors.

Educational systems and institutions in Wisconsin face many challenges in preparing the future workforce. It is critical for the success of our agricultural, food and natural resource sectors that

we have the right combination of skills in the right place at the right time. Current and expected challenges include a shrinking supply of qualified instructors at all levels; the ability to attract and retain high quality staff; ability to expand programs to meet growing demand; expanding secondary educational programs in urban settings; sustaining rural programs in periods of declining Pre-K-12 enrollments: expanding the number of agricultural/science equivalency approvals and promoting quality curriculum and instructional facilities to meet STEM needs; professional development, especially related to rapidly changing technology; and access to funding at all levels to meet basic educational system needs as well provide modern facilities for training, education and research. Please review each of the education system reports below for more details.

The Council has developed and implemented initiatives to increase the awareness of the employment and career opportunities in these sectors to encourage workers to consider jobs in the modern workforce so our citizens can successfully pursue family-supporting careers. While lack of funding for the Council to carry out its mission remains an issue, the 2014 -15 program of work calls for increased cooperation between the Council, educational institutions at all levels, industry organizations, state agencies and workforce development boards throughout the state. These initiatives are described below. Funding is being developed through grants, private industry funds, in-kind support, individuals and organizational contributions as well as other sources.

The technical colleges have a long history of offering high quality programs in agriculture and natural resource career pathways. These programs offer students education and training in a wide variety of agriculture and natural resource related professions including farm business, dairy herd management, veterinary technician, and laboratory technician. Programs developed by and delivered through the UW System, including UW-Extension, will remain vital to our efforts. The Council will continue development of the WhyAg, Wisconsin Job Center and other websites.

Based on these and other challenges and opportunities, we believe the Council can and should continue to play a key role in ensuring Wisconsin has the availability of a strong, well-educated workforce for the agriculture, food and natural resource sectors.

Introduction

This Annual Report highlights some of the accomplishments of the Council for the year ending June 30, 2014. An excellent source of information on the Council is located at http://wiaglink.org/. Activities of the Council focused on specific initiatives to meet our purpose of ensuring the availability of a strong, well-educated workforce for agriculture, food and natural resource sectors.

Research completed by the Council in 2012 conservatively estimated that there will be over 132,000 openings for career positions in Wisconsin's food, agriculture and natural resource sectors through 2020. Approximately 43,000 of these positions will be created by increased demand for agricultural products and growth in the industry. However, about 68% (89,190) of the anticipated openings will be created by retirements or those leaving career positions in these fields. Nothing has happened to change this forecast.

Council Creation

Wisconsin Act 223, enacted on 4/7/2008, created the Wisconsin Agricultural Education and Workforce Development Council. To review the complete Act go to http://www.legis.state.wi.us/2007/data/acts/WisAct 223. In September of each year a report is required to be delivered to the Legislature, Governor and other specified institutions. The Report must include the following:

1. A summary of the activities of the Council during the fiscal year ending on the preceding June 30.
2. The Council's reaction to the annual agricultural program reviews prepared by the Department of Public Instruction for primary and secondary schools, the WI Technical College System, the University of Wisconsin System and the University of Wisconsin Extension-Cooperative Extension with input from or review by the University of Wisconsin System administration.
3. A list of current and anticipated challenges related to agricultural education.
4. Recommendations of the Council, including any recommendations related to the structure of the Council or the termination of the Council.
5. Dissents of any Council member related to the activities and recommendations of the Council.

Agricultural Education and Workforce Development Council Purpose

The Council shall seek to do all of the following:

1. Increase the hiring and retention of well-qualified employees in industries related to agriculture, food, and natural resources.
2. Promote the coordination of educational systems to develop, train, and retrain employees for current and future careers related to agriculture, food, and natural resources.
3. Develop support for employment in fields related to agriculture, food, and natural resources.
4. Recommend policies and other changes to improve the efficiency of the development and provision of agricultural education across educational systems.
5. The council shall seek to accomplish the purposes by advising state agencies on matters related to integrating agricultural education and workforce development systems, including all of the following:
    a. The coordination of programs.
    b. The exchange of information related to educational and workforce development needs.
    c. The monitoring and evaluation of programs.
6. The council shall identify criteria for evaluating the success of its activities, shall evaluate the success of its activities using those criteria, and shall annually report the results of the evaluation in the annual report.

The Council has undertaken the following:

1. Council Structure Development/Activities:
    a. New Council members since the last Annual Report include:
        i. David G. Anderson, Asst. Deputy Secretary, DWD (Secretary Newson Designee)
        ii. Natalie Killion, Counselor, Green Bay Preble High School
        iii. Kate Rahmlow, Sector Development Manager, WI Economic Development Corporation (CEO Hall Designee)
        iv. Eric Runez, School Administrator, Whitewater School District
        v. Sandra Schmit, Wisconsin Technical College System
        vi. Daniel G. Smith, Aministrator, WDATCP (Secretary Brancel Designee)
        vii. James D. Smith, Director, MacKenzie Center, DNR (Secretary Stepp Designee)
        viii. Taylor Weichman, Wisconsin Technical College System
        ix. Please see http://wiaglink.org/ to review the Council Membership Chart.
    b. The Council Executive Committee is currently led by Chair Paul Dietmann, Badgerland Financial; Vice-Chair Corey Kuchta, Wisconsin Public Service

Corporation; and Past Chair Paul Larson, Freedom Schools. Al Herrman serves as Executive Director.

c. The Council also conducted Legislative & Government Agency briefings on Council objectives, activities and future direction, including funding and support.

2. Participated with other entities in seeking grant funding.
    a. In an effort led by the University of Wisconsin – Platteville (UWP), the Council is partnering with UWP and Southwest Technical College in seeking a capacity building grant from for Non Land Grant Colleges of Agriculture provided by USDA. Award announcement is expected later this year. The Council portion of the grant request focuses on the following efforts:
        i. Developing a Summit bringing together industry, educators, government, economic development representatives, high school and post-secondary student leaders to focus on the future workforce requirements and how to meet those needs.
        ii. Developing and implementing a Peer Mentoring program to improve student retention rates once a decision is made to seek careers in these fields.
        iii. Developing and implementing an Employer Mentoring program to provide guidance to students as they move through their educational experience and explore career opportunities in these sectors.
        iv. Developing and implementing High School Counselor programs that expose counselors to the current career opportunities and the changing and demanding skill sets required in these sectors.
        v. Developing and implementing Discovery Sessions designed to expose potential employees (students) to career options in these sectors.
    b. In an effort led by Madison Area Economic Partnership (MadREP), the Council participated with the Workforce Development Board of South Central Wisconsin in pursuing a grant. While unsuccessful in obtaining funding, the process brought exposure to the Council initiatives. The primary initiatives were:
        i. Developing and implementing the Summit concept above.
        ii. Developing mentoring and internship programs to increase exposure and preparation for careers in the industry.
        iii. Expanding the WhyAg website capabilities and exposure.
        iv. Development of school counselor programs to increase their understanding of the skill sets and employment opportunities in these sectors.

3. Promotion of Careers in the agricultural, food and natural resource sectors. The Council participated in several educational forums and public events to promote careers in these sectors. Examples include:
    a. Presentation at Dane County Career Enhancement program. This initiative included teachers and counselors from throughout Dane County exploring career opportunities in agriculture in order to better advise their students.
    b. Presentation at Green Bay Public Schools Career and Technical Education event entitled "Finding the Future Workforce – Labor Market Trends in the 21st Century.
    c. Wisconsin State Fair – Discovery Barnyard and Wisconsin Farm Technology Days. The Council, with support from industry and educational institutions, presented

an interactive display to encourage students and parents to explore careers in these sectors.

4. WhyAg Initiative. The Why Ag initiative is a resource that links qualified job candidates with companies that have employment needs. It complements other industry initiatives to promote career opportunities in the fields of food production, natural resources, agriculture, life sciences and related industries. It is designed to heighten awareness of and create interest in opportunities in these fields; link qualified employers with a qualified workforce; strengthen the perception of these fields as offering strong, viable and sustainable roles in Wisconsin's workforce and economy; and improve knowledge and understanding of workforce needs in these fields.
    a. The Council and Northcentral Technical College (NTC) are in the process of transferring the WhyAg program to the NTC platform to enhance the WhyAg capabilities and increase coordination with the Team AG Ed efforts in Wisconsin.
    b. For more information, please visit: http://www.whyag.com.

5. Organization Recognition. During 2013-14 the Council received significant in-kind contributions that enabled the Council to meet its mandated mission. The following examples are provided to identify the types of support provided and are not all inclusive of every organization or association. A few examples include:
    a. Wisconsin Agribusiness Foundation provided significant quantities of the booklets and materials that were used at public events, including the Wisconsin State Fair and Wisconsin Farm Technology Days.
    b. Badgerland Financial and Wisconsin State Fair (Discovery Barnyard at State Fair), UW–Extension (Farm Technology Days), Wisconsin Public Service (WPS Farm Show) and many other organizations provided space and materials for use at trade events.
    c. Badgerland Financial provided accounting and bookkeeping services.

6. Economic Development Organizations. The Council has increased coordination with and participation in job creation and economic development efforts with other organizations in the state. Examples include:
    a. The Council became a member of FaB – Wisconsin. FaB, an organization of the Milwaukee Association of Commerce, is dedicated to improving the food and beverage industry in Wisconsin. The Council and FaB will coordinate activities that cross-over our respective industries.
    b. NEW North Youth Careers Pathways task Force. The Council is a member of this initiative designed to bring industry and educators together to help indentify workforce needs and design actionable careers plans for use by the students within the region covered by the three workforce development boards.

7. Wisconsin Agriculture Education Foundation, Inc. (Foundation). The Foundation's main purpose is to ensure education in the areas of agriculture, food, environmental and natural resources continues to be part of the educational opportunities for Wisconsin students (Pre-K-12 through post-secondary). The Foundation will raise and distribute monies for charitable, educational, and scientific purposes, and to otherwise advance these causes by methods permitted under the meanings of Section 501(c) (3) of the IRS

code. The Foundation was created, in part, but not entirely, to help fund activities of the Council. The Foundation has agreed to conduct fund raising and manage funds for the Council as the Council is an entity of the state, includes public employees as well as appointed and elected officials, and may be involved in activities that are not in concert with the 501 (c) (3) status. Significant points of information include:

a. The Foundation has retained Al Herrman, former Council Chair and recent retiree from Wisconsin Public Service, to serve as Executive Director. He receives a small stipend and provides certain services pro-bono until such time as the Council and Foundation are capable of maintaining a regular Executive Director.
b. The Foundation maintains an agreement with Badgerland Financial under which Badgerland Financial provides the Foundation with certain tax and accounting services. These services are critical in maintaining the credibility and viability of the fund raising and accounting efforts on behalf of the Council.
c. The Foundation, with assistance from the Council, provides competitive financial grants designed to enhance the ability to provide higher quality education programs at the Secondary level. The Foundation also provides competitive professional development grants for Post-Secondary technical college instructors. Applicants must demonstrate how the grants will be used to improve the educational experience, how it will be maintained, how it will benefit the school community and how success will be measured. The 2014 grant requests involved improving curriculum rigor, paperless instruction, instructional facilities, and access to scientific instructional materials. Many of the classes are designed to help students meet science graduation requirements. The 2014 winners were Freedom High School, Laconia High School, Southern Door High School, Waterford Union High School and the Weston School District.

2014-15 Objectives and Programs

The primary objectives remain the same for 2014-15 with a focus on increasing the hiring and retention of well-qualified employees in industry, education and other occupations related to the agriculture, food, and natural resource sectors.

The proposed initiatives support efforts to prepare workers for jobs in the modern workforce so our citizens can successfully pursue family-supporting careers and find true independence. This modern workforce must be prepared to address issues such as food security, bio-energy, nutrition enhancements, disease prevention, community and economic development, business systems and management, environmental challenges, improving production agriculture, and supporting industries. Enhancing our educational system is critical to the success of these efforts.

Primary Initiatives

1. AgriFuture Summit. Scheduled for April 9, 2015 in Madison, this initiative is designed to bring together industry, education and government leaders along with students (future employees) from post-secondary secondary institutions to discuss three basic questions. These questions are:
   a) What is the future of agriculture?
   b) What are the challenges facing agriculture?

c) What are the innovative ways to meet those challenges, with an emphasis on education and workforce development?

2. School Counselors. These individuals are the key point of contact for students as they explore career opportunities, educational options, and begin to develop a career plan. It is essential that school counselors have the latest information and materials to advise students on career opportunities. Historically, school counselors have viewed production agriculture and related industries as having low wages, limited opportunities for future growth, and requiring lower level skill sets. It is critical that we address these misconceptions and provide counselors with the tools necessary to help recruit the best students possible into these career opportunities. Initiatives will include local and regional "hands-on" seminars to update Counselors on current and future career opportunities; presentations at in-service events, including the state convention; and development of materials to be used for student advising.
3. School Superintendents/Administrator programs/seminars. Similar to School Counselors, this group is critical to providing the necessary resources to support educational efforts in these areas to prepare students for employment opportunities or furthering their education in these fields. Initiatives would be similar in nature.
4. Career Discovery Camps. A series of half–day and one day-, week-end and week-long exploration camps held at key business and educational institution locations throughout the state. The local, regional and state-wide efforts to designed to expose students to current and potential career opportunities and educational requirements necessary to pursue those careers. Emphasis will be placed on "hands-on" experiences and the ability to see careers in action.
5. Mentoring Programs. These programs are designed to provide student-to-student and industry-to-student mentors that can advise students on educational and career decisions as they travel along the educational and training pathways. The goal is to increase retention of students once they enter the educational and training systems and to assist in transfers between educational institutions.

Additional 2014-15 Council/Foundation Plans

The Council will also strive to:

1. Develop sustainable funding and resources for the Council and Foundation.
2. Continue to research and make application for grants and private foundation funding for career employment training and to ensure a qualified workforce for agriculture, food and natural resources.
3. Provide continued development and enhancements of the WhyAg, Job Center of Wisconsin, and other web-sites.
4. Increase the efficiency of workforce development efforts and further leverage our Public/Private Partnerships by expanding collaboration with private industry, trade associations, educators, government agencies, Workforce Development Boards and economic development groups.
5. Develop initiatives that encourage students to develop actionable career plans that involve high school, technical college and advanced degree institutions.
6. Support Agricultural Education to increase the resources and commitment to developing a highly qualified future workforce.
7. Update research on career opportunities and publicize findings.

Annual Agriculture Education Program Reviews

Agriculture Education in Wisconsin's PK-12 Public Schools

Agriculture Education in Wisconsin's PK-12 Public Schools

Agriculture education continues to prepare students for careers in the agriculture industry, while developing students' leadership skills through FFA and their Supervised Agriculture Experience (SAE). Today's agriculture education departments have developed a comprehensive structure that includes areas such as biotechnology, veterinary science, alternative energy, food science, horticulture and landscaping. With such variety, students are being prepared for the 21st Century.

Program Status

- The Wisconsin Department of Public Instruction has created the **Wisconsin Standards for Agriculture, Food, and Natural Resources.** This resource provides a framework for aligning agriculture, food and natural resources curriculum, instruction and assessment.
- Over 19,000 agriculture education students are also members of the Wisconsin Association of FFA. This is a 30 year high membership.
- One new agriculture education program was established this past year. Lakeside Lutheran in Lake Mills, the first private school, will be offering agriculture education courses as well as an FFA Chapter.
- Over 4,000 FFA members competed in career development events ranging from agriculture mechanics to environmental and natural resources.
- The Department of Public Instruction (DPI) continues to implement an agriculture/science equivalent credit process to award science credits for agriculture courses. Over 100 schools and over 200 courses have been approved.

- Over 160 agriculture education departments use the Center for Agricultural and Environmental Research and Training (CAERT), a lesson library, online textbook and assessment program. This program is similar to Project Lead the Way (PLTW), in providing rigorous and relevant teaching materials in agriculture education.

- The implementation of career clusters and pathways in Agriculture, Food and Natural Resources as well as Science, Technology, Engineering and Mathematics, (STEM), expands career development opportunities and helps transition secondary to post-secondary.

Agricultural Education Challenges

Pre-K through 12 Public School Challenges

- Shrinking supply of qualified agriculture education teachers has become a major challenge. Over the last four years 40 agriculture education teachers retired or chose a different profession. This represents almost 13% of the agriculture education teaching profession. Also during the 2013-14 school year there were 3 emergency licensed agriculture education teachers.
- Expanding agriculture education programs in Wisconsin. Currently there are 253 school districts offering agriculture education out of the 426 school districts.
- Expanding agriculture education programs in urban school districts.
- Sustaining rural agriculture education programs during periods of declining Pre-K-12 enrollments.
- Expanding the number of agriculture/science equivalency approvals - 100 out of the 253 programs have approved agriculture/science equivalency credit.
- Promoting quality curriculum and instructional facilities for an agriculture education program to meet the STEM needs.

Wisconsin Technical College System

The Wisconsin Technical College System (WTCS) provides the state with the critical, essential technical occupations on which we all rely. The Systems' 16 colleges equip graduates with real world, hands-on experience they apply to specific occupations that provide us all with security and quality of life. The technical colleges stimulate local economic development by providing a well-educated workforce based on local occupational needs, as well as providing the innovation to meet emerging opportunities, for local business and industry. From biotech to electronics to health care to public safety – great paying jobs await technical college graduates.

The technical colleges have a long history of offering high quality programs in agriculture and natural resource career pathways. In the 2014-2015 school year, these programs include 20 applied associate degree programs, 16 1-year technical diplomas, two 2-year technical diplomas, eight short-

term technical diplomas, and two apprenticeships offered at 14 of the 16 colleges. These programs offer students education and training in wide variety of agriculture and natural resource related professions including farm business, dairy herd management, veterinary technician, and laboratory science technician.

Figure 1 - WTCS Agriculture Programming

Program	Program Title	Ed Director	Followup Division	Cip Code	TSA/ Phase-1 Date	District
CLUSTER: Agriculture, Food and Natural Resources PATHWAY: Agribusiness Systems						
10-006-2	Agri-Business/Science Technology	WEICHMAN	0	01.0105	Internal Assessment 10/3/2012	*WTC
						*SWTC
						*FVTC
10-006-3	Agriscience Technician	WEICHMAN	0	1.0105	Internal Assessment 7/24/2012	*CVTC
10-090-3	Sustainable Food & Agriculture Systems	WEICHMAN	0	01.0308		*NWTC
30-090-1	Farm Business & Production Management	WEICHMAN	0	01.0104	Internal Assessment 9/15/2011	*CVTC
						*WTC
						*SWTC
						*MDSN
						*BTC
						*LTC
						*FVTC
						*NWTC
						*MSTC
						*WITC
30-090-2	Farm Management	WEICHMAN	0	01.0104		*MPTC
31-006-1	Agribusiness Specialist	WEICHMAN	0	01.0105	Internal Assessment 7/24/2012	*BTC
31-006-6	Agribusiness Management Technician	WEICHMAN	0	01.0102		*FVTC
31-080-4	Farm Operation	WEICHMAN	0	01.0301	Internal Assessment 9/15/2011	*FVTC
						*MSTC
CLUSTER: Agriculture, Food and Natural Resources PATHWAY: Animal Systems						
10-091-1	Veterinary Technician	WEICHMAN	0	51.0808		*MDSN
						*GTC

CLUSTER: Agriculture, Food and Natural Resources PATHWAY: Animal Systems						
10-091-4	Dairy Science	WEICHMAN	0	01.0905	Internal Assessment 7/18/2014	*NTC
10-091-6	Veterinary Science	WEICHMAN	0	01.0905	Internal Assessment 7/18/2014	*NTC
50-091-1	Dairy Grazier Apprenticeship	WOOD	0	01.0905	Internal Assessment 6/11/2014	*NTC
30-091-1	Dairy Feeding Management	WEICHMAN	0	01.0306		*WITC
30-091-2	Dairy Genetics and Reproduction	WEICHMAN	0	01.0902		*WITC
30-091-4	Dairy Cattle Management	WEICHMAN	0	01.0306		*WITC
31-006-5	Agribusiness Dairy Technician	WEICHMAN	0	01.0306		*FVTC
31-091-1	Dairy Herd Management	WEICHMAN	0	01.0306		*SWTC
						*LTC
						*WITC
31-091-3	Veterinary Assistant	WEICHMAN	0	51.0808		*GTC
CLUSTER: Agriculture, Food and Natural Resources PATHWAY: Environmental Service Systems						
50-527-1	Wastewater Plant Operator	WOOD	7	15.0506		*MPTC
61-506-1	Water Technician WTCS Pathway Certificate	WOOD	7	15.0506		*MILW
10-506-1	Environmental Health & Water Quality Technology	WOOD	7	15.0506		*MILW
10-506-2	Environmental Engineering - Waste & Water Tech	WOOD	7	15.0506		*LTC
						*NWTC
10-506-4	Laboratory Science Technician	WOOD	7	41.0101	Internal Assessment 2/3/2014	*WCTC
						*FVTC
						*WITC
10-527-2	Water Quality Technology	WOOD	7	15.0506	Course Completion 12/7/2012	*MPTC
31-506-1	Laboratory Science Assistant	WOOD	7	41.0101	Internal Assessment 2/3/2014	*FVTC
31-506-4	Laboratory Science Technician Assistant	WOOD	7	51.0802		*BTC

CLUSTER: Agriculture, Food and Natural Resources PATHWAY: Food Products and Processing Systems						
10-320-2	Enology	WEICHMAN	4	01.0309		*NWTC
CLUSTER: Agriculture, Food and Natural Resources PATHWAY: Natural Resources Systems						
10-001-5	Arboriculture/Urban Forestry Technician	WEICHMAN	0	03.0508		*MSTC
10-057-1	Natural Resources Technician	WEICHMAN	0	03.0101		*FVTC
10-058-1	Wildland Firefighter	SILVA	0	43.0206		*FVTC
10-482-1	Wind Energy Technology	WEICHMAN	5	15.0399		*MPTC *LTC *FVTC *NWTC
31-058-1	Wildland Fire Crew	SILVA	0	43.0206		*FVTC
CLUSTER: Agriculture, Food and Natural Resources PATHWAY: Plant Systems						
10-001-1	Horticulture	WEICHMAN	0	01.0601	Internal Assessment 10/5/2012	*CVTC *GTC
10-001-4	Landscape Horticulture	WEICHMAN	0	01.0605	Internal Assessment 10/5/2012	*WTC *MILW *LTC *NWTC
32-001-2	Horticulture/Landscape Specialist	WEICHMAN	0	01.0601		*FVTC
10-320-1	Viticulture	WEICHMAN	4	01.0309		*NWTC
61-001-1	Horticulture Plant Health Care	WEICHMAN	0	01.0605		WTC
30-001-3	Horticulture/Landscape Technician	WEICHMAN	0	01.0605	Internal Assessment 10/5/2012	*BTC
30-001-5	Basic Horticulture	WEICHMAN	0	01.0601		*MDSN
31-001-1	Horticulture Technician	WEICHMAN	0	01.0601	Internal Assessment 10/5/2012	*LTC
CLUSTER: Agriculture, Food and Natural Resources PATHWAY: Plant Systems						
31-001-1	Horticulture Technician	WEICHMAN	0	01.0601	Internal Assessment 10/5/2012	*FVTC
31-001-3	Landscape Technician	WEICHMAN	0	01.0605		*WTC
31-006-4	Agribusiness Agronomy Technician	WEICHMAN	0	01.1102		*FVTC
CLUSTER: Agriculture, Food and Natural Resources PATHWAY: Power, Structural and Technical Systems						
10-003-2	Agriculture Power Equipment	SCHMIT	0	01.0201	Internal Assessment 7/7/2014	*FVTC
10-070-1	Agricultural Equipment Technology	SCHMIT	0	01.0205		*MDSN
32-070-1	Agricultural Power & Equipment Technician	SCHMIT	0	01.0205	Internal Assessment 7/7/2014	*SWTC *WITC
31-003-2	Agriculture Equipment Service Technician	SCHMIT	0	01.0205	Internal Assessment 7/7/2014	*FVTC
31-006-7	Precision Agriculture Technician	WEICHMAN	0	01.0106		*FVTC
31-070-4	Agriculture Equipment Technician	SCHMIT	0	01.0205	Internal Assessment 6/24/2014	*NTC

Graduates from agriculture programs in the Wisconsin Technical College System have a very high success rate at being employed in their chosen field (see Figure 2). The Wisconsin Technical College System conducts graduate follow-up surveys six months after graduation on graduate's success rate

finding employment as well as median starting salary. For Agriculture programs, the 2013 survey indicates that 94% of Wisconsin Technical College System graduates were employed and 84% were employed in an agriculture related field. The median starting salary for these graduates was $30,158. These numbers show there are very good employment opportunities for the systems graduates.

Agribusiness Division – All

Program Name	No. of Grads	Responses	In Labor Force	Employed	Employed Related	Seeking Employ-ment	Median Salary Hourly	Median Salary Annually	Ave. Hours / Week
Associate Degree Totals	263	206	191	178 (93%)	145 (81%)	13	$13.25	$29,118	44
Short-Term Technical Diploma Totals	51	26	25	23 (92%)	20 (87%)	2	$9.89	$27,298	61
One-Year Technical Diploma Totals	99	75	47	46 (98%)	41 (89%)	1	$10.33	$30,223	56
Two-Year Technical Diploma Totals	30	22	20	20 (100%)	18 (90%)	0	$14.00	$36,303	53
Agribusiness Division Totals	**443**	**329**	**283**	**267 (94%)**	**224 (84%)**	**16**	**$12.80**	**$30,158**	**48**

The Agriculture Programs in the Wisconsin Technical College System provide an excellent opportunity for Wisconsin's students to obtain the skills necessary for a successful career in agriculture and natural resource fields.

The University of Wisconsin System

The industries associated with Agriculture and natural resources (forestry and forest products) annually employ over 413,500 Wisconsinites and generate over $88.3 billion in economic activity. Career Pathways associated with these economic engines include Agribusiness, Animal Systems, Environmental Services, Food Products and Processing, Natural Resources, Plant Systems, and Power, Structural and Technical Systems. Recruiting and educating students for these professions is vital to growth of the Wisconsin economy. Baccalaureate programs that prepare students for professional careers in agriculture and natural resources are offered by UW-Madison College of Agricultural and Life Sciences (CALS); UW-Platteville School of Agriculture (SOA); UW-River Falls College of Agriculture, Food and Environmental Sciences (CAFES); and UW-Stevens Point College of Natural Resources (CNR).

In spite of the current successes in agriculture and natural resources, one of the greatest challenges facing agriculture in the 21st century is our ability to develop and sustain a highly educated, skilled workforce trained to solve agricultural problems. According to information published in the *Chronicle of Higher Education* and American Public Media's *Marketplace*, half of agriculture employers experience difficulty finding qualified graduates to fill their positions. This observation is supported by data indicating that graduates from post-secondary agriculture programs will meet less than half of the future agriculture workforce needs. These data concern leaders in agriculture and its allied academic leaders in the University of

Wisconsin as we seek to graduate more individuals with the knowledge and skills required to be successful in the evolving 21st century agriculture workplace.

Undergraduate enrollments in UW-System colleges and schools of agriculture and natural resources declined about 2.4 percent in 2013-14 compared to the previous year. However, over 1497 undergraduates received baccalaureate degrees in agriculture, life science, and natural resources programs from CALS (UW-Madison), CNR (UW-Stevens Point) and SOA (UW-Platteville) during 2013-14, which is roughly 9 percent more than 2012-13 (*Note: graduation numbers were not available from UW-River Falls at the time of printing*). While the number of baccalaureate degrees awarded continue to increase at UW-System colleges and schools of agriculture and natural resources, the number of graduates seeking careers in these areas is unlikely to meet the demand for new professionals during the next eight to ten years.

The paragraphs that follow provide detailed statistics for enrollment and graduates from baccalaureate institutions in the UW-System with programs in agriculture, life sciences, and natural resources.

University of Wisconsin Madison College of Agriculture and Life Science (CALS)
Enrollment in CALS programs declined 7.7 percent during 2013-14 when compared to the previous year. Programs demonstrating growth included agriculture business management, agronomy, environmental science, and nutritional sciences. In contrast, enrollment in biochemistry, biology, horticulture and landscape architecture declined significantly compared to 2012-13. CALS graduated 945 students with baccalaureate degrees, which represented a 2.3 percent decline compared to 2012-13.

University of Wisconsin-Madison College of Agriculture and Life Sciences
Enrollment and Graduation Statistics

Academic Program	*Enrollment (2013-14)*	*Change from 2012-13 (%)*	*Graduates (2013-14)*	*Change from 2012-13 (%)*
Agricultural Business	*103*	*71.7*	*16*	*-15.8*
Agricultural & Applied Economics	*48*	*-5.9*	*19*	*0*
Agronomy	*43*	*59.3*	*9*	*-35.7*
Animal Science	*186*	*5.1*	*41*	*64.0*
Poultry Science	*3*	*-40.0*	*3*	*50.0*
Microbiology	*194*	*16.9*	*61*	*74.3*
Biochemistry	*406*	*-15.8*	*92*	*-21.4*
Biological Systems Engineering	*145*	*-3.3*	*37*	*-7.5*
Biology	*835*	*-38.3*	*266*	*-18.2*
Dairy Science	*79*	*16.2*	*16*	*6.7*
Entomology	*11*	*22.2*	*2*	*-33.3*
Environmental Science	*92*	*95.7*	*21*	*162.5*
Food Science	*150*	*0.7*	*36*	*33.3*
Forestry Science	*36*	*-2.7*	*17*	*54.5*
Genetics	*303*	*4.5*	*60*	*-13.0*
Horticulture	*31*	*-38.0*	*20*	*100.0*
Landscape Architecture	*62*	*-20.5*	*20*	*-13.0*

Life Sciences Communication	*189*	*21.2*	*61*	*-10.3*
Nutritional Sciences	*347*	*30.9*	*64*	*-5.9*
Plant Pathology	*25*	*66.7*	*7*	*133.3*
Community and Environmental	*68*	*19.3*	*38*	*100.0*
Soil Science	*16*	*-15.8*	*8*	*-20.0*
Wildlife Ecology	*103*	*3.0*	*31*	*-16.2*
CALS Undecided	*135*	*35.0*		
TOTAL UNDERGRADUATE	*3610*	*-7.7*	*945*	*-2.3*
TOTAL GRADUATE	*923*	*2.1*		
TOTAL	*4533*	*-5.9*		

Please visit the following web links for more information regarding agriculture and life science programming at CALS (UW-Madison Home: http://www.wisc.edu/; College: http://www.cals.wisc.edu/; Career Services: http://www.cals.wisc.edu/students/careerServices/; Farm and Industry Short Course: http://fisc.cals.wisc.edu/).

University of Wisconsin-Platteville School of Agriculture

The UW-Platteville School of Agriculture continues to be the fastest growing undergraduate agriculture program in the University of Wisconsin System, growing over 100 percent since 2004. Enrollment in the School of Agriculture increased modestly (2.5 percent) during 2013-14 with the greatest growth occurring in the animal science program. Modest increases were observed in agribusiness, ornamental horticulture, and agricultural education. Enrollment in the reclamation, environment and conservation program declined sharply (-14.6 percent), likely due to the high number of graduates during 2012-13 which was about 116.7 percent above the typical number for the program. The number of students completing baccalaureate degrees during 2013-14 in the SOA was 60 percent more than the previous year, and was especially high for animal science, ornamental horticulture, agribusiness, agricultural education, and soil and crop science. The increased number of graduates is likely due to the large recruiting years during 2008 and 2009, and increased number of students seeking a second major or minor and graduating at mid-year.

Please visit the following web links for more information regarding agriculture programming at UW-Platteville. UW-Platteville (Home: http://www.uwplatt.edu/; School website: http://www.uwplatt.edu/agriculture; Majors and minors: http://www.uwplatt.edu/agriculture/academic-programs; Faculty and Staff: http://www.uwplatt.edu/agriculture/school-agriculture-faculty-and-staff; Pioneer Farm: http://www.uwplatt.edu/pioneer-farm).

University of Wisconsin-Platteville School of Agriculture

Enrollment and Graduation Statistics

Academic Program	***Enrollment (2013-14)***	***Change from 2012-13 (%)***	***Graduates (2013-14)***	***Change from 2012-13 (%)***
Agribusiness	*288*	*2.5*	*72*	*33.3*

Agricultural Education	*50*	*2.0*	*12*	*33.3*
Animal Science	*327*	*5.8*	*85*	*93.2*
Ornamental Horticulture	*28*	*3.7*	*8*	*60.0*
Reclamation, Environment & Conservation	*41*	*-14.6*	*13*	*116.7*
Soil & Crop Science	*81*	*0.0*	*23*	*53.3*
TOTAL UNDERGRADUATE	*815*	*2.5*	*213*	*60.2*

University of Wisconsin-River Falls College of Agriculture, Food, and Environmental Sciences

Undergraduate enrollment in agriculture, food and environmental sciences in CAFES at UW-River Falls (UWRF) grew 5.4 percent in 2013-14. Enrollment increases were observed in agricultural engineering technology, crop and soil science, and dairy science. In contrast, undergraduate enrollments decreased in agricultural studies and agricultural education). Graduation statistics for 2013-14 were not available at the time of this report.

Changes in undergraduate programming in CAFES include development of a new emphasis in companion animals in the animal science major, and creation a food science and technology minor in January 2014 that replaced the major of the same. The land use planning major was dropped and became an emphasis within the conservation major. In addition, CAFES has initiated a remodeling project for the dairy pilot plant, as well as developing a master plan for its laboratory farms and attempting to secure more land for farm expansion.

University of Wisconsin-River Falls College of Agriculture, Food and Environmental Sciences

Enrollment and Graduation Statistics

Academic Program	***Enrollment (2013-14)***	***Change from 2012-13 (%)***	***Graduates (2013-14)***	***Change from 2013-13 (%)***
Agribusiness	*181*	*7.7*	*NA*	*NA*
Agricultural Education	*74*	*-8.6*	*NA*	*NA*
Agricultural Engineering Technology	*85*	*11.8*	*NA*	*NA*
Agricultural Studies	*43*	*-33.8*	*NA*	*NA*
Animal Science	*484*	*8.8*	*NA*	*NA*
Conservation	*90*	*5.9*	*NA*	*NA*
Crops and Soils	*69*	*35.3*	*NA*	*NA*
Dairy Science	*142*	*19.3*	*NA*	*NA*
Environmental Science	*39*	*-4.9*	*NA*	*NA*
Food Science and Technology	*3*	*-57.1*	*NA*	*NA*
Geology	*38*	*-7.3*	*NA*	*NA*
Horticulture	*69*	*9.5*	*NA*	*NA*
Land Use Planning (Merged with Conservation)	*5*	*-37.5*	*NA*	*NA*

Sustainable Management	*12*	*-20.0*	*NA*	*NA*
TOTAL UNDERGRADUATE	*1334*	*5.4*	*NA*	*NA*
TOTAL GRADUATE ENROLLMENT	*6*			
TOTAL ENROLLMENT IN CAFES	*1340*	*5.6*		

Please visit the following web links for more information regarding the agriculture, food and environmental science program at UW-River Falls (UW-River Falls Home: http://www.uwrf.edu/; College website. http://www2.uwrf.edu/college-of-agriculture/; Program: http://www2.uwrf.edu/college-of-agriculture/majors.htm; Faculty and Staff: http://www2.uwrf.edu/college-of-agriculture/people.htm; Laboratory Farms: http://www2.uwrf.edu/college-of-agriculture/farms.htm; Internship Office: http://www2.uwrf.edu/college-of-agriculture/internship.htm).

University of Wisconsin-Stevens Point College of Natural Resources

Undergraduate enrollment in the College of Natural Resources at UW-Stevens Point held steady (1 percent increase) at 1,812 during 2013–14. Programs exhibiting the greatest enrollment increases were resource management, and fisheries and water resources. The number of students enrolled in the wildlife and forestry programs declined about 12 percent and 5.4 percent, respectively, when compared to the previous year. The number of graduates in the CNR programs increased about 24 percent when compared to 2012-13. Programs with the greatest increases in graduation numbers were wildlife and forestry.

University of Wisconsin-Stevens Point College of Natural Resources

Enrollment and Graduation Statistics

Academic Program	***Enrollment (2013-14)***	***Change from 2012-13 (%)***	***Graduates (2013-14)***	***Change from 2012-13 (%)***
Forestry	*404*	*-5.4*	*94*	*38.2*
Resource Management	*459*	*19.5*	*76*	*16.9*
Soil Science	*118*	*-1.7*	*25*	*-16.7*
Fisheries and Water Resources	*327*	*9.0*	*27*	*0*
Paper Science	*69*	*3.0*	*8*	*-50.0*
Wildlife	*435*	*-12.3*	*109*	*62.7*
TOTAL UNDERGRADUATE	*1812*	*1.0*	*339*	*4.2*

Please visit the following web links for more information regarding the natural resources programs at UW-Steven's Point. (College website: http://www.uwsp.edu/CNR/; Undergraduate Programs: http://www.uwsp.edu/cnr/undergrad_programs.aspx; Graduate Programs: http://www.uwsp.edu/cnr/Graduate/index.aspx; Faculty and Staff: http://www.uwsp.edu/cnr/faculty.aspx; Quick Facts: http://www.uwsp.edu/cnr/quickfacts.aspx).

University of Wisconsin System Challenges

UW-System colleges and schools with baccalaureate programs in agriculture, food, and natural resources continued to face many challenges.

- UW-System Institutions have continued to do more with less.
    - We have increased undergraduate enrollments and the number of graduates with baccalaureate degrees steadily for the last decade even when faced with sharp decreases in state funding. Even these increases in enrollment and number of graduates will not keep pace with the anticipated demand for agricultural professionals through the remainder of this decade.
    - We have become more entrepreneurial and philanthropic to support our undergraduate and graduate programs.
- We still have a culture in which high school graduates and college students select careers based on personal interest and employer wages instead of career availability, which do not always correlate with the availability of career positions. To change the student culture we must consider the following.
    - We must continue to promote agriculture career paths and publicize the need for agriculture professionals.
        - Agriculture programs face fierce competition from other majors and career paths with more "flash". We must work with industry to generate student interest beginning at the middle school level.
        - Career areas with higher wages have greater appeal and continue to challenge our ability to attract and retain women and students of varied racial and ethnic heritage.
        - The number of high school graduates in Wisconsin and surrounding states is expected to decline for the foreseeable future. We must recruit beyond our state boarders and better publicize the affordability and high quality of education that UW-System Institutions offer.
- We must improve our ability to recruit and retain quality faculty and staff if we are to meet the need for professional careers in agriculture, life sciences and natural resources.
    - Recruitment and Retention of quality faculty and staff remains compromised. We must improve our effectiveness in these areas implementing the following strategies
        - Provide competitive salaries.
            - Starting salaries are currently as much as 40% lower than peer institutions.
        - Reduce employee costs associated with health and retirement benefits.
        - Create an environment of trust and collaboration between Higher Education and State Government.
            - Political polarization is unattractive to those from other states looking at career positions in Wisconsin.
        - Providing Adequate Resources for Students and Faculty.
- Limited funding for building projects and purchase of capital (equipment and technology) has caused us to lag behind our peer institutions.
    - The process for purchasing must be streamlined and more flexible.

    - Lengthy approval process for building projects that does not keep pace with program growth.
- Block grant funding has failed to create an atmosphere in which UW-System campuses can retain savings to invest in areas that allow us to support continued growth.
    - Greater transparency of UW-System budgets (past, current and projected) as well as strategic plans for resource use is necessary to build trust UW-System, State Lawmakers, Industry, and public constituents as we move forward.

University of Wisconsin-Extension Cooperative Extension

University of Wisconsin-Extension Cooperative Extension provides research-based education, technical assistance and consultation through four program areas — Agriculture and Natural Resources; Community, Natural Resource and Economic Development; Family Living; and 4-H Youth Development. Within the Agriculture and Natural Resources Extension (ANRE) program area, county educators and state specialists work with numerous partners to: 1) create a vibrant and robust agricultural economy; 2) support healthy, accessible and safe food systems; and 3) protect valued natural resources. ANRE faculty and staff also teach through the UW-Madison Farm and Industry Short Course and 4-H Youth Development agricultural programs. This unique network — 96 state specialists on University of Wisconsin Madison, Platteville and River Falls campuses, 85 agriculture educators in 68 of Wisconsin's 72 counties, public and private educational partners and farmers — fosters collaboration, innovation, economic and workforce development, improving both farm management practices as well as scientific understanding of agriculture.

ANRE statewide teams include dairy; farm and risk management; livestock; nutrient management; grains; forages; fresh market and commercial vegetable crops; fruit crops; horticulture; small farms; and bioenergy. In 2011, extension leadership sought statewide input on critical and emerging issues requiring an interdisciplinary response, resulting in 2012 development of two new cross-program teams — Community Food Systems; and Engaging Young People to Sustain Communities, Families and Farms. Agricultural service providers such as crop consultants, cooperative or private business sales staff, veterinarians, dairy nutritionists, lenders and others increasingly turn to extension for professional development training and support, and validation of best management advice they share with customers. A comprehensive 2012 evaluation study report documents how partnerships with trained agricultural service providers help extension state specialists and county educators bolster Wisconsin's $88.3 billion agricultural economy supporting 413,500 jobs. A 2013 study of Meat Animal Quality Assurance (MAQA) training supports around 4,500 MAQA-certified youth producing a quality meat animal each year for county and state fair projects and auctions, preparing youth for agricultural careers. MAQA certification also meets the national Pork Quality Assurance (PQA) requirement. Other examples of significant extension contributions to

agricultural education and workforce development include:

Teaming with agricultural professionals to improve dairy reproduction efficiency: Reproductive performance of dairy cows has been declining for some time. As dairy herds produced more milk per cow, their fertility decreased. In many cases, this costly situation results in premature culling. Extension reproduction specialists and county educators have been conducting educational events to help dairy producers improve reproductive performance of their cows. Optimizing reproductive performance requires an integrated approach sharing information and expertise across dairy science disciplines as well as among all farm personnel and their advisors who manage animal health, nutrition, housing and breeding.

Raising more than $25,000 industry sponsorship, one specialized extension program made 40 presentations reaching more than 1,000 farm owners, managers and their advisors, veterinarians, nutritionists and extension educators from University of Wisconsin Dairy Science and other departments and counties. Reproducing Profitability Workshops introduced methods for improving reproductive performance and invited dairy farmers and agricultural professionals to join a Repro Money Program. So far, 42 farms use on-farm management teams of trained extension facilitators, veterinarians, nutritionists, artificial insemination consultants and technicians, key employees and others. Of 36 farms completing the program as of August 2014 (average herd size 453 cows), 78% achieved all their goals — yielding an average gain of $61 per cow per year totaling $354,165. Results have been shared with agricultural professionals at Arlington Dairy Day, extension district meetings, Tri-State and Four-State Dairy Nutrition and Management conferences, Wisconsin Veterinary Medicine Association, and World Dairy Expo. Decision support tools are available in English and Spanish from county extension offices and receive up to 100 views per day at: http://dairymgt.info/tools.php

Strengthening pest management: Researchers, farmers and their advisors acted quickly to prolong use of a valuable Corn Belt pest management tool — transgenic Bt corn hybrids that produce insect-killing proteins from the soil bacterium *Bacillus thuringiensis* (Bt). Bt-resistant western corn rootworms (WCR) have been confirmed in 11 Iowa fields. Extension field reports from Minnesota, Nebraska and Wisconsin offered evidence of resistance, and Wisconsin WCR populations are being screened for resistance in 2014. Extension-trained grain producers and their advisors are responding to WCR resistance to Bt corn with integrated pest management (IPM) practices. In 2012, 375 Pest Management Update meeting survey respondents reported using what they learned to make decisions on more than 8 million acres, which they valued at an average $28.34 per acre — more than $114 million of value that extension information provided, improving grower management decisions and consultant recommendations. Research data and outcomes help support regulatory and commercial processes to better define the extent of Bt resistance and take action to prolong efficacy of Bt corn traits for future use.

Extending extension reach: Simply counting educational contacts does not capture the extent of a program's reach. For example, the 1,525 agricultural professionals who attended the 2013 Wisconsin Crop Management Conference from Wisconsin, Minnesota, Iowa, Illinois, Indiana and

Michigan produce a large multiplier effect as Wisconsin extension research-based recommendations ultimately reach an increasing portion of the Great Lakes Region crop production sector including farmers. Extension integrated pest management (IPM) and other specialists reinforce this work through regional professional development trainings for Wisconsin's 620 Certified Crop Advisors who earn 40 hours of continuing education units every 2 years to remain certified. Agricultural service providers such as crop consultants, cooperative or private business sales staff, veterinarians, dairy nutritionists, lenders and others increasingly turn to extension for professional development training and support, and validation of best management advice they share with customers. A comprehensive 2012 evaluation study of nearly 1,000 statewide agricultural service providers titled *Impact of the University of Wisconsin-Extension Cooperative Extension's work and partnerships with Agricultural Service Providers in Wisconsin* shows how UW-Extension helps enhance the economic impact on agriculture:

- 85% agreed that Cooperative Extension has helped them improve their services to their customers.
- 78% said extension recommendations have improved their own or their clients' profitability.
- 71% said extension plays a key role in bridging government agencies at the local, state and federal levels, strengthening relationships and use of research findings.

Creating and retaining jobs: In 2013, extension Pesticide Applicator Training supported 1,735 private and 5,388 commercial applicators, enabling farmers and employees of agronomic, horticulture and green industries to safely apply pesticides — protecting themselves, the public and the environment. Farmers must be certified to purchase pesticides classified as restricted use, frequently used in pest management programs on their farms. If these farmers were not certified as private applicators, they would have to hire commercial applicators to make these pesticide applications, which would increase their operating costs. Commercial applicators trained by extension must pass an exam to become certified. With this certification and licensing, they can be employed (i.e. jobs created). Certified applicators must complete continuing education units to maintain their certification (i.e. jobs retained).

Training Amish families boosts profitability: Since founding the Tri-County Produce Auction in 2010, up to 75 Amish families have been getting vegetable production education and technical assistance tailored to their needs and culture from Green Lake County UW-Extension. A 2013 survey found that trained Amish families used extension education to grow better crops, producing 12% more vegetables. Fresh market vegetable producers with 3 to 12 acres can earn an average net income of $4,679 per acre (CIAS, 2006). On average, the 12% increase in Amish growers' vegetable production adds $562 net income per acre, so those who responded to the survey increased their total net income by $97,226 on 173 acres — and all 75 families could increase their income by $347,236, at least a 10-fold return on Green Lake County investment in extension agricultural education. The next generation are trained in the field side-by-side with

their parents as described in the next paragraph. And buyers can count on consistent competitive prices, USDA-grade food safety and quality: http://ifmwi.org/auctions.aspx

Expanding access: Working closely with the mainly Amish Tri-County Produce Auction Committee, University of Wisconsin-Extension agriculture agent Nav Ghimire has strengthened relationships and trust with the Amish community — tailoring fresh market vegetable production education and delivery to meet their needs based on evaluation results and feedback, respecting their cultural mandates. Ghimire conducts workshops, grower meetings and field days, provides the entire farming family one-on-one on-farm technical assistance on disease and insect control and nutrient management with follow-up contacts and soil testing, develops and delivers easy-to-read fact sheets, and coordinates trainings at the auction house such as Good Agricultural Practices with the Department of Agriculture, Trade and Consumer Protection certifying 30 growers in 2012-2013. He visits farms from June to October with a box of books, camera and lens, computer and wireless hot spot directly to the field where he shows both the Amish couple and their children the problem pest or disease and the recommended solution. In 2013, he reached 38% (N=75) of all 200 auction growers with research-based education and on-farm technical assistance.

Assuring safe local foods: As a group, canned foods such as pickles, salsas and tomato-based products are referred to as acidified foods. Processed incorrectly, such foods are potentially hazardous. Federal and state laws require processors of acidified foods to have attended an FDA-approved training program. To provide proper training meeting processors' business needs while complying with regulations, research was needed to fill knowledge gaps in the safety and regulatory framework for acidified foods. In collaboration with University of Wisconsin-Extension food safety specialists, North Carolina State University faculty have developed scientific information validating critical points in manufacture for training small-scale processors of acidified canned foods vending primarily at farmers' markets. Training and supporting small-scale processors increases availability of safe local products while protecting public health. This integrated research and extension collaboration is developing national research-based certification training, evaluating its effectiveness, and sharing best practices among professionals, processors and regulators through a national eXtension Community of Practice.

Master Meat Crafters: Within a small margin of error, meat processors must thoroughly understand what pathogens must be controlled and how most effectively to control them. Initiated and directed by extension meat specialist Jeff Sindelar in partnership with the Department of Agriculture, Trade and Consumer Protection, the Master Meat Crafter Training Program addresses food safety with practical application throughout the program's 2 years, providing graduates the knowledge, skills and proper tools to process 100% safe food all the time. As of January 2014, 38 graduates have received the distinction of Master Meat Crafter, and the third class is on track for 2016. Graduates apply and share skills to improve the safety, consistency, quality and profitability of specialty meats — pleasing customers while expanding

sales. Their communities gain good jobs and other economic benefits. Long-term industry viability is ensured as plants grow, add on, and pass along the business for future generations.

Preparing youth for careers in agriculture: The 4-H Youth Development program connects directly with young people ages 5 to 19 across the state of Wisconsin. Through 4-H, young people engage in their communities and develop skills to navigate the challenges of a complex world. More than 360,000 youth participate in Wisconsin 4-H programs including clubs, educational opportunities at school, after-school programs, and neighborhood youth centers. In 2013, 1,452 adults advised the 8,377 youth who enrolled in 4-H beef, swine, sheep and goat projects, many with the goal of producing a quality meat animal.

Extension 4-H campus specialists and county educators completed a Meat Animal Quality Assurance (MAQA) program evaluation that measured how well youth develop and practice positive animal agriculture behaviors, skills and abilities that improve animal projects and prepare them for careers in agriculture. Since MAQA started in 2003, extension faculty have trained veterinarians, extension and other agriculture educators. Extension livestock specialists, county educators and 4-H volunteer leaders train both youth ages 8 to 19 as well as new volunteer leaders. Once older youth are certified and able to show what they know, they can take on leadership roles and help teach younger youth. Roughly 4,500 youth are currently MAQA-certified. The Wisconsin State Fair and most counties require MAQA certification for 4-H and FFA beef, swine, sheep and goat project exhibitors at fairs and auctions.

Survey results showed increased knowledge after MAQA educational sessions:

- **Animal Management Practices:** The average of good and excellent ratings increased from 75% to 94%.
- **Animal Handling Skills:** The average of good and excellent ratings increased from 66% to 90%.
- **Agricultural Careers:** The average of good and excellent ratings increased from 55% to 81%.
- **Mentoring and Leadership:** The average of often and almost always responses increased from 76% to 89%.

Results of this evaluation indicate that MAQA participation had a positive impact on participants' self-assessment of their abilities and increased their leadership and mentoring behaviors. MAQA had a positive impact on respondents' ability to identify career opportunities in agriculture, and to explore agricultural career opportunities. With respect to identifying career opportunities, 85% rated themselves as good or excellent after MAQA compared to 59% before MAQA. Prior to their participation in MAQA, half of respondents said they were good or excellent at exploring career opportunities through methods such as job sharing. *The Meat Animal Quality Assurance Participant Impact Survey Report, 2013* by James Janke and David Trechter, University of Wisconsin-River Falls Survey Research Center is due out in 2014.

Current and expected challenges:

1. Having sufficient funding for state specialist and county educator positions to address the research and Extension education needs, issues and opportunities of Wisconsin's diverse agriculture and horticulture sectors (production and food processing)
   - Several areas of "content" are not being addressed with specialized support
2. General lack of persons with graduate degrees in agriculture and horticulture to fill UW-Extension positions
   - Candidate pools for most positions are weak
   - Fewer candidates with direct experience in production agriculture/horticulture
3. Recruiting, hiring and retaining high quality campus-based state specialists (UW-System faculty and academic staff with UW-Extension appointments)
   - Several Extension state specialists have left the UW-System for positions at other universities or industry. Others have received offers from other universities and retention packages are needed to retain their expertise (reducing funds available for other purposes)
4. Recruiting, hiring and retaining high quality county-based agriculture and horticulture educators
   - Several educators have left Extension to accept positions in the private sector or with the Wisconsin Technical College System – often siting compensation, work/life balance and/or the opportunity to pursue more specialization in their careers
5. Professional development – keeping faculty and staff current in an environment that demands expertise and specialization. This is made harder when fewer positions create the need for more generalized content knowledge
6. Ever faster pace of changes in technology and expectations of younger faculty and staff for support in the availability of and training for the use of those technologies

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Council Structure Recommendations

The activities and results of 2013-14 continue to strengthen the commitment to fulfill the Vision and Mission of the Council. All of the functions as originally identified remain and are still necessary for Wisconsin's Agriculture, Food and Natural Resource Sectors to succeed. The Council should remain in place to carry out the following functions as defined by the Act:

1. Increase the hiring and retention of well-qualified employees by industries related to agriculture, food and natural resources.

2. Promote the coordination of educational systems to develop, train and retain employees for current and future careers related to agriculture food and natural resources.

3. Develop support for career pathways and employment in fields related to agriculture, food and natural resources.

4. Recommend policies and other changes to improve the efficiency of the development and provision of agricultural education across all educational systems.

5. The Council shall seek to accomplish these purposes by advising state agencies on matters related to integrating agricultural education and workforce development systems.

Council Member Approval of Activities and Recommendations

The Wisconsin Agricultural Education and Workforce Development Council 2014 Annual Report was distributed electronically to all Council members. Each Council member was asked to review the Annual Report to provide their approval or dissent of the Annual Report. Chair Paul Dietmann requested that any dissent should be given along recommendations for the Council to consider.

Subsequent to final review, the Council received member approval of its activities and 2014 Annual Report.

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