

Wisconsin Agricultural Education & Workforce Development Council

2013 Annual Report

Executive Summary

Great Opportunities – Significant Challenges

The Wisconsin Agricultural Education and Workforce Development Council (“Council”) conservatively estimates 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.

The Council is developing initiatives to increase the awareness of the employment and career opportunities in this sector 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. The initiatives target Pre-K-12 and collegiate students as well as returning workers to increase awareness and interest in these careers. Seminars and workshops for school counselors, superintendents, administrators and students will be a key component of the initiatives. 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 these efforts. The Council will continue development of the WhyAg, Wisconsin Job Center and other websites.

There are many challenges to maintaining and improving our current and future workforce. The rapid rate of retirements in the near future will drain the workforce of significant knowledge and experience. An antiquated view of typical job requirements (low hours, low pay, no benefits, minimal educational requirements, etc.,) versus the reality of most jobs today must be addressed and corrected. While enrollments in post-secondary programs in these fields are increasing, especially in the more scientific and technical curriculums, the resources to meet the instructional

and research needs, including competitive wages and benefits for staff, are not keeping pace. Lack of funding for the Council to carry out its mission remains an issue.

The Pre-K-12 system has witnessed strong and growing interest in programs in these areas. Significant issues in this area include: a shrinking supply of qualified agriculture education teachers due to retirements and teachers choosing other professions, expanding agriculture education programs in Wisconsin (currently only 253 out of 426 school districts offer agriculture education), expanding agriculture education programs in urban school districts, and sustaining rural agriculture education programs during periods of declining Pre-K-12 enrollments. Additional issues include expanding the number of agriculture/science equivalency approvals (80 or of the 253 programs have approved agriculture/science equivalency credit), continuing to counter false impressions that agriculture education is not a rigorous agri-science course offering, and promoting quality curriculum and instructional facilities for an agriculture education program to meet the STEM (Science, Technology, English, Math) standards.

We believe the Council can and should continue to play a key role in **ensuring Wisconsin the availability of a strong, well-educated workforce for agriculture, food and natural resource systems.**

Introduction

This Annual Report highlights some of the accomplishments of the Council for the year ending June 30, 2013. 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 systems.**

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](http://www.legis.state.wi.us/2007/data/acts/WisAct%20223). 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:
 - The coordination of programs.
 - The exchange of information related to educational and workforce development needs.
 - 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:
 - New Council members since the last Annual Report include: Reggie Newson, Secretary of Workforce Development (designee Mike Greco); Reed Hall, CEO of the Wisconsin Economic Development Corporation (designee Tom Thieding); Julie Sauer, designee for Cathy Stepp, Secretary, Department of Natural Resources; Morna K. Foy, Director, Wisconsin Technical College System; Karen Gefvert, Wisconsin Farm Bureau Federation, representing general agriculture; Laura B. Bahn-Wornell, McCain Foods, representing food product and food processing; Maggie Bishop, Trees For Tomorrow, representing businesses related to Natural Resources; Dan Wegner, United Wisconsin Grain Producers, representing businesses related to renewable energy; Bob Mayer, Brownfield Agricultural News, a representative of agricultural communication interests; Steven Smolek, representing school district administrators; David Kruse, representing a high school teacher in the fields of science, vocational technology, business, math, or a similar field; Senator Luther Olson, Chair, Senate Education Committee; Senator Terry Moulton, Chair, Senate Agriculture Committee; and Kathy

Schmitt, representing the State Department of Agriculture Trade and Consumer Protection. Please see <http://wiaglink.org/> to review the Council Membership Chart.

- In June 2013, the Council recognized four members that had completed their Council Membership term:
 - Darlene Arneson, a representative of general agriculture
 - Cal Dalton, a representative of business related to renewable energy
 - Pam Jahnke, a representative of business related to agricultural communication interests
 - Becky Lezvow, a representative of general agriculture.
 - The Council Executive Committee is currently led by Paul Larson – Chair and Corey Kuchta - Vice Chair. Patrick Link, who was chosen as Chair during the past year has left the Council after assuming a new career with a financial institution. The Executive Committee will be selecting new members.
 - The Council conducted new Council member orientation and briefings.
 - The Council also conducted Legislative & Government Agency briefings on Council objectives, activities and future direction, including funding and support.
2. **Reviewed employment and agricultural economic growth reports.** The Council requested data and information from several sources to determine key issues facing our near-term workforce. Recent studies indicate that Wisconsin’s food, natural resource, production agriculture, life sciences and related industries will need to retain the existing workforce numbers while adding an additional 132,000 skilled workers in less than seven years to maintain and improve our competitive position in the marketplace. Other initiatives are being considered to identify key skills that will be required and current weaknesses that must be remediated to maintain and improve Wisconsin’s competitive position in these fields.
3. **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.
- Analytics – an example. For the period January through July, 2013, there were approximately 1,800 visitors to the site by 1,466 unique users. Approximately 20% of the visitors are return visitors. The average time on the site is 6:08 minutes. While the visitors are concentrated in Madison and east central Wisconsin, visits have been made from throughout the state. Since inception of the WhyAg site 25% of the visitors are returning visitors.
 - 2013 Focus. WhyAg will be a key component in the fund raising campaign during 2013-14.
 - For more information, please visit: <http://www.whyag.com>.

4. Job Center of Wisconsin Agriculture Industry page.

- The Council worked in partnership with the Department of Workforce Development (DWD) to develop a new Agriculture Industry page on JobCenterofWisconsin.com. The page is a one-stop online resource for information about agricultural careers, training resources, reports and other information about working in the agriculture industry. The Agriculture Industry page is the third of its kind since JobCenterofWisconsin.com was developed. The first two were manufacturing and transportation job pages. The free, user-friendly site, currently lists more than 43,000 job openings statewide.
- The Council will be exploring additional initiatives with DWD to keep the Agriculture Industry page fresh and increase awareness of the agriculture industry in Wisconsin.

5. Northcentral Technical College's (NTC) online career pathways initiative.

- This initiative is designed to provide both high school students and returning adult students the opportunity to explore their desired career paths through interactive, informative web-pages that feature career and program information, transfer information, placement data and job placement and wage information. In working with the Council, Dr. Lori Weyers, President of NTC, thought NTC's model might be a template that the Council could use to promote careers in agriculture on a statewide level. The proposed template includes links to agriculture career exploration, high school options and FFA opportunities, higher education opportunities in agriculture related fields and job placement/wage data, as well as continuing education opportunities for learners.
- A sample template can be found at: <http://www.ntc.edu/dev/ag/index.html>.

6. Association and Organization Recognition. During 2012-13 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. Examples include:

- Wisconsin Agribusiness Foundation provided significant quantities of the booklet entitled This Business Called Agriculture that were used at public events, including the Wisconsin State Fair. The Foundation also provided other publications and materials.
- Wisconsin Farm Bureau Foundation – Ag In The Classroom program also provided significant resources in the form of educational materials to be used at various events.
- Midwest Food Processors Association assisted in increasing awareness of the Council mission and encouraged financial support among its members.
- Alice In Dairyland, Rochelle Ripp, the 65th Alice in Dairyland, utilized the WhyAg campaign as one her message points during her term.
- Collegiate Association of Women in Agriculture, 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 at trade events.

- The Council would not have survived without the assistance of many state agencies and educational institutions, especially the Wisconsin Department of Agriculture, Trade and Consumer Protection as well as the Department of Public Instruction.

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:

- Jack Ourada completed his term as Executive Director of the Council and Project Coordinator for the Foundation on 12/31/12. The Foundation has contracted with Al Herrman, former Council Chair and recent retiree from Wisconsin Public Service, to serve in similar capacities. He is providing certain services pro-bono until such time as the Council and Foundation are capable of maintaining a regular Executive Director.
- The Foundation has entered into a three year agreement with Badgerland Financial under which Badgerland Financial agrees to provide 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.
- With the financial services in place the Foundation is now preparing to initiate fund raising efforts to support the program needs of the Council.
- The Foundation, with assistance from the Council, provided competitive financial grants designed to enhance the ability to provide higher quality education programs at the Secondary level. The Foundation also provided competitive professional development grants for Post-Secondary technical college instructors. The 2012 winners were: Secondary. Cumberland: purchase of the CAERT "Animals, Plants, and Soils" Library and E-Units and the CAERT "Middle School Agriscience" Library providing valuable instructional tools for all 156 enrolled students. Independence: assist with development of school fruit orchard, grape vineyard, and community garden, including instruction. Oconto Falls: Middle School working with the local food pantry to build a one acre community garden. Winneconne: purchase an I-pad 3 to assist low income students with lab and research projects. Gresham: purchase "Tool Kits" for Small Engines. Juda: purchase Groundwater Model Project from U.W-Stevens Point American Water Resources Association. Post-Secondary Professional Development: Chippewa Valley and Mid-States Technical Colleges. The 2013 winners included Watertown, Albany, Mishicot, Gillett and Lakeshore Technical College.

8. **2013 -14 Objectives and Programs.** Recent studies indicate that Wisconsin's food, natural resources, agriculture, life sciences and related industries will need to retain the existing workforce numbers while adding an additional 132,000 skilled workers in less than seven

years to maintain and improve our competitive position in the marketplace. State and federal initiatives are being developed to provide training for the incumbent workers and enhance access to these jobs for new workers so that Wisconsin can meet these growing challenges and opportunities. The Council identified initiatives increase the awareness of the employment and career opportunities in this sector.

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.

Primary Initiatives:

- School Counselor programs/seminars. These individuals are the key point of contact for students as they explore career opportunities. 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 regional 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.
- 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.
- Regional Career Workshops for middle/high school students. Participation in key regional and state-wide student functions to increase student awareness of career opportunities in these sectors.

Additional 2013-14 Council/Foundation Plans

The Council will strive to:

- Develop sustainable funding and resources for the Council and Foundation.
- Provide continued development and enhancements of the WhyAg, Job Center of Wisconsin, and other web-sites.
- 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.
- Develop initiatives that encourage students to explore careers in these fields. Such efforts may include day-, week-end and week-long exploration camps held at key business and educational institution locations throughout the state.

- Support Agricultural Education to maintain the resources and commitment to developing a highly qualified future workforce.
- 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.

Annual Agriculture Program Reviews

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 ("DPI") 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.
- Two new agriculture education programs were established this past year. Fall River and Milwaukee Vincent 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 80 schools and over 180 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 three years 35 agriculture education teachers retired or chose a different profession. This represents almost 14% of the agriculture education teaching profession. Also during the 2012-13 school year there were 11 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 - 80 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 2013-2014 school year, these programs include 19 applied associate degree programs, 13 1-year technical diplomas, two 2-year technical diplomas, six 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 (see Figure 1).

Figure 1 - WTCS Agriculture Programming

Program Number	Agriculture, Food and Natural Resources	Blackhawk	Chippewa Valley	Fox Valley	Gateway	Lakeshore	Madison Area	Mid-State	Milwaukee Area	Moraine Park	Nicolet	Northcentral	Northwest Wisconsin	Southwest Wisconsin	Waukesha County	Western	Wisconsin Indianhead
31-006-1	Agri-Business Specialist	■															
10-006-2	Agri-Business/Science Technology		■										■			■	
31-006-4	Agribusiness Agronomy Technician		■														
31-006-5	Agribusiness Dairy Technician		■														
31-006-6	Agribusiness Management Technician		■														
10-070-1	Agricultural Equipment Technology						■										
32-070-1	Agricultural Power & Equip. Technician												■				■
31-003-2	Agriculture Equipment Service Technician		■														
31-070-4	Agriculture Equipment Technology										■						
10-003-2	Agriculture Power Equipment		■														
10-006-3	Agri-Science Technician	■															
10-001-5	Arboriculture – Urban Forestry Tech.							■									
30-091-4	Dairy Cattle Management																■
30-091-1	Dairy Feeding Management																■
30-091-2	Dairy Genetics & Reproduction																■
50-091-1	Dairy Grazier Apprenticeship											■					
31-091-1	Dairy Herd Management					■							■				■
10-091-4	Dairy Science											■					
10-320-2	Enology												■				
10-506-2	Environmental Engineering Waste & Water Tech												■				
10-506-1	Environmental Health & Water Quality Technology								■								
30-090-1	Farm Business & Production Management	■	■	■		■	■	■					■	■		■	■
31-080-4	Farm Operation		■					■									
10-001-1	Horticulture		■		■												
30-001-5	Horticulture (basic)						■										
31-001-1	Horticulture Technician		■			■											
32-001-2	Horticulture/Landscape Specialist		■														
30-001-3	Horticulture/Landscape Technician	■															
10-506-4	Laboratory Science Technician		■														
31-506-4	Laboratory Science Technician Assistant	■															
10-001-4	Landscape Horticulture					■		■				■				■	
31-001-3	Landscape Technician																■
10-057-1	Natural Resources Technician		■														
31-091-3	Veterinary Assistant				■												
10-091-6	Veterinary Science											■					
10-091-1	Veterinary Technician			■		■											
10-320-1	Viticulture												■				
50-527-1	Wastewater Plant Operator									■							
10-527-2	Water Quality Technology									■							
31-058-1	Wildland Fire Crew		■														
10-058-1	Wildland Firefighter		■														
10-482-1	Wind Energy Technology		■		■				■			■					

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 2012 survey

indicates that 94% of Wisconsin Technical College System graduates were employed and 86% were employed in an agriculture related field. The median starting salary for these graduates was \$29,975. These numbers show there are very good employment opportunities for the systems graduates.

Figure 2 - Agribusiness Division – All

Program Name	No. of Grads	Re-sponses	In Labor Force	Number Employed	Percent Employed	Number Employed Related	Percent Employed Related	Seeking Employment	Median Salary Hourly	Median Salary Annually	Ave. Hours / Week
<i>Associate Degree Totals</i>	274	197	169	154	91%	126	82%	15	\$13.00	\$30,000	43
<i>Short-Term Technical Diploma Totals</i>	90	46	44	43	98%	40	93%	1	\$12.00	\$32,824	54
<i>One-Year Technical Diploma Totals</i>	66	53	50	48	96%	42	88%	2	\$10.00	\$24,000	54
<i>Two-Year Technical Diploma Totals</i>	34	25	25	25	100%	24	96%	0	\$13.54	\$31,599	52
Agribusiness Division Totals	464	321	288	270	94%	232	86%	18	\$12.50	\$29,975	47

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 about 354,000 Wisconsinites and directly contribute over \$59 billion into the Wisconsin economy. 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-Madison School of Veterinary Medicine (UW-SVM); 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).

The Wisconsin Workforce Development Council conservatively estimates that there will be over 132,000 openings for career positions in agriculture and natural resources through 2020. About 43,000 of these positions will be created by increased demand for agriculture 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 agriculture and natural resources.

Undergraduate enrollment in UW-System colleges and schools of agriculture and natural resources grew 6% in 2012-13 compared to 2011-12. In addition, about 1261 students pursued advanced degrees (DVM, MS, and PhD) bringing the total enrollment in agriculture and natural resource programs to 8974 students. During 2012-13 over 1700 undergraduates received baccalaureate degrees in agriculture, life science, and natural resources programs from UW-System institutions. A 10.4% increase compared to 2011-12. While enrollments in UW-System colleges and schools of agriculture and natural resources continue to experience growth, the number of graduates from agriculture, life science, and natural resources programs is unlikely to meet the annual 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 during 2012-13 grew 7.8% compared to the previous year. Programs demonstrating the greatest growth included agricultural & applied economics, environmental science, food science, life sciences communication, biological systems engineering. In contrast, enrollment in dairy science, landscape architecture, soil science, agricultural business management, and agronomy declined compared to 2010-11. CALs graduated 967 students with baccalaureate degrees, which represented a 14.6% increase compared to 2011-12.

University of Wisconsin-Madison College of Agriculture and Life Sciences

Enrollment and Graduation Statistics

<i>Academic Program</i>	<i>Enrollment (2012-13)</i>	<i>Change from 2011-12 (%)</i>	<i>Graduates (2012-13)</i>	<i>Change from 2011-12 (%)</i>
<i>Agricultural Business Management</i>	60	-7.7	19	-36.7
<i>Agricultural & Applied Economics</i>	51	104	19	35.7
<i>Agronomy</i>	27	-3.6	14	55.6
<i>Animal Science</i>	177	1.7	25	0
<i>Poultry Science</i>	5	25	2	0
<i>Microbiology</i>	166	12.2	35	25.0
<i>Biochemistry</i>	482	2.3	117	9.3
<i>Biological Systems Engineering</i>	150	17.2	40	60.0
<i>Biology</i>	1354	9.4	325	49.8
<i>Dairy Science</i>	68	-11.7	15	-34.8
<i>Entomology</i>	9	0	3	-62.5
<i>Environmental Science</i>	47	213.3	8	
<i>Food Science</i>	149	28.4	27	-6.9
<i>Forest Science</i>	37	15.6	11	0
<i>Genetics</i>	290	3.9	69	-4.2
<i>Horticulture</i>	50	13.6	10	-61.5
<i>Landscape Architecture</i>	78	-22.8	23	-32.4
<i>Agricultural Education (Discontinued)</i>	0	-100		

<i>Life Sciences Communication</i>	156	43.1	68	61.9
<i>Nutritional Sciences</i>	265	0	68	-5.6
<i>Plant Pathology</i>	15	87.5	3	50
<i>Community and Environmental</i>	57	-3.4	19	-29.6
<i>Soil Science</i>	19	-42.4	10	
<i>Wildlife Ecology</i>	100	-3.8	37	19.4
TOTAL UNDERGRADUATE	3812	7.8	967	14.6
TOTAL GRADUATE ENROLLMENT/CALS	864	-10.6		
TOTAL ENROLLMENT/GRADUATION	4476	3.9		

Changes in CALS programs include discontinuation of the agriculture education baccalaureate program, moving the dietetics major into nutritional sciences, and creation of the environmental science program in 2011-12.

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 Madison School of Veterinary Medicine

Enrollment in graduate programs in the UW-Madison School of Veterinary Medicine increased modestly (2.6%) in 2012-13 compared to the previous year. This increase can mostly be attributed to a significant increase in candidates pursuing the doctorate in comparative biomedical sciences. The number of graduates obtaining a doctorate in veterinary medicine (DMV) decreased slightly, while the number of graduates from the comparative biomedical sciences increased.

University of Wisconsin-Madison School of Veterinary Medicine

Enrollment and Graduation Statistics

Academic Program	Enrollment (2012-13)	Change from 2011-12 (%)	Graduates (2012-13)	Change from 2011-12 (%)
<i>Doctorate – Veterinary Medicine (DMV)</i>	315	0	76	-2.6
<i>Comparative Biomedical Sciences (MS)</i>	20	-31.0	10	25.0
<i>Comparative Biomedical Sciences (PhD)</i>	54	54.3	7	16.7
TOTAL ENROLLMENT/GRADUATION	389	2.6	93	1.1

Please visit the following web links for more information regarding veterinary medicine programming at UW-Madison. Home: <http://www.wisc.edu/>; School: <http://www.vetmed.wisc.edu/>; Departments: <http://www.vetmed.wisc.edu/departments/>; Research: <http://www.vetmed.wisc.edu/research/>; DVM Program: <http://www.vetmed.wisc.edu/dvm-students/>).

University of Wisconsin-Platteville School of Agriculture

UW-Platteville School of Agriculture continues to be the fastest growing undergraduate program in the University of Wisconsin System, growing about 11% since 2011-12 and 97% since 2004. The greatest enrollment increases occurred in soil and crop science (24.6%), agribusiness (23.2%),

ornamental horticulture (8.0%), and animal science (5.5%). However, enrollment declined in agricultural education (-15.5%) and reclamation, environment and conservation (-4.9%). Enrollment increases over the last several years also resulted in a record number of UW-Platteville agriculture student interns in the workplace during 2013. Over 125 School of Agriculture student interns were employed by agriculture and natural resources firms in Wisconsin, Illinois, Iowa, Minnesota, North Dakota, Texas, New Mexico, Arizona, Indiana, and South Dakota during 2013. The number of students graduating with baccalaureate degrees in agribusiness, and soil and crop science increased sharply (31.7% and 7.1%, respectively) compared to 2011-12. However, the total number of students obtaining baccalaureate agriculture related degrees declined about 4%.

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/soa/>; Majors and minors: <http://www.uwplatt.edu/soa/major.html>; Faculty and Staff: <http://www.uwplatt.edu/soa/personnel/index.html>; Pioneer Farm: <http://www.uwplatt.edu/pioneerfarm/>).

University of Wisconsin-Platteville School of Agriculture

Enrollment and Graduation Statistics

Academic Program	Enrollment (2012-13)	Change from 2011-12 (%)	Graduates (2012-13)	Change from 2011-12 (%)
<i>Agribusiness</i>	281	23.2	54	31.7
<i>Agricultural Education</i>	49	-15.5	9	-40.0
<i>Animal Science</i>	309	5.5	44	-21.4
<i>Ornamental Horticulture</i>	27	8.0	5	-28.6
<i>Reclamation, Environment & Conservation</i>	48	-4.0	6	0
<i>Soil & Crop Science</i>	81	24.6	15	7.1
TOTAL UNDERGRADUATE	795	10.6	133	-4.3

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) remained steady in 2012-13. Enrollment increases were observed in agricultural engineering technology (16.7%), animal science (7.5%), and horticulture (3%). In contrast, undergraduate enrollments decreased in agricultural studies (-10.0%), agricultural education (-5.0%), conservation (-14.0%), dairy science (-4.1%), and crops and soils (-8.1%). The slight decrease in enrollment reflects the graduation of students that entered CAFES programs between 2008 and 2009 when the college experienced rapid growth. The number of CAFES students receiving baccalaureate degrees during 2012-13 increased by over 11% compared to the previous year.

Changes in undergraduate programming in CAFES include development of a new emphasis in companion animals in the animal science major, and creation of a food science and technology minor that will replace the major of the same name beginning January 2014. The land use planning major will be dropped and become 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 (2012-13)	Change from 2011-12 (%)	Graduates (2012-13)	Change from 2011-12 (%)
<i>Agribusiness</i>	165	-2.4	39	0
<i>Agricultural Education</i>	95	-5.0	19	26.7
<i>Agricultural Engineering Technology</i>	84	16.7	15	-6.3
<i>Agricultural Studies</i>	54	-10.0	18	50.0
<i>Animal Science</i>	487	7.5	91	19.7
<i>Conservation</i>	98	-14.0	30	25.0
<i>Crops and Soils</i>	57	-8.1	17	6.3
<i>Dairy Science</i>	118	-4.1	31	6.9
<i>Environmental Science</i>	50	0	10	42.9
<i>Food Science (Suspended)</i>	17	-43.3	8	0
<i>Geology</i>	38	-9.5	10	11.1
<i>Horticulture</i>	69	3.0	19	18.8
<i>Land Use Planning (Merged with Conservation)</i>	7	-58.8	0	-100.0
TOTAL UNDERGRADUATE	1339	-1.5	307	11.6
TOTAL GRADUATE ENROLLMENT (MS)	10	-33	6	-14.3
TOTAL ENROLLMENT IN CAFES	1349	-1.8	313	11.0

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 increased about 6.3% to 1,767 during 2012–13. Programs exhibiting the greatest enrollment increases were fisheries and water resources (18.1%), resource management (10.4%), and soil science (9.3%).

University of Wisconsin-Stevens Point College of Natural Resources

Enrollment and Graduation Statistics

<i>Academic Program</i>	<i>Enrollment (2012-13)</i>	<i>Change from 2011-12 (%)</i>	<i>Graduates (2012-13)</i>	<i>Change from 2011-12 (%)</i>
<i>Forestry</i>	391	-1.3	80	1.3
<i>Resource Management</i>	362	10.4	64	36.2
<i>Soil Science</i>	117	9.3	28	12.0
<i>Fisheries and Water Resources</i>	307	18.1	42	-6.7
<i>Paper Science</i>	68	-5.6	8	166.7
<i>Wildlife</i>	522	4.4	73	-13.1
<i>TOTAL UNDERGRADUATE</i>	1767	6.3	295	4.2
<i>TOTAL GRADUATE ENROLLMENT (MS)</i>	72	-14.3	23	
<i>TOTAL ENROLLMENT IN CNR</i>	1839	5.3	318	

Please visit the following web links for more information regarding the natural resources programs at UW-Stevens 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. However, our increases in enrollment and number of graduates will not keep pace with the anticipated demand for agricultural professionals through the remainder of this decade.
 - Colleges have become more entrepreneurial and philanthropic to support undergraduate and graduate programs.
- The State still has a culture in which high school graduates and college students select careers based on personal interest and employer wages instead of career availability. Personal interest and employer wages are not always connected to 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 borders 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 looking at Wisconsin from other states.
 - 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 among UW-System, state lawmakers, industry, and public constituents as we move forward.
 - Flexibilities to establish a personnel system and collective bargaining unit that reflects the uniqueness of academic institutions has slowed and reduced our ability to be more responsive to the needs of the agriculture industry and residents of Wisconsin.

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 Programs; 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 the Madison, Platteville and River Falls UW 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 bio-energy. In 2011, extension leadership sought statewide input on critical and emerging issues requiring a multi-disciplinary 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 Cooperative Extension state specialists and county educators bolster Wisconsin's agricultural economy. A 2013 study of trained green industry professionals provides evidence that nearly all share what they learn with co-workers, greatly expanding extension outreach. Of participants surveyed after completing the Landscaping and Grounds Maintenance Short Course, 80% said they would share course information with at least two others, while nearly 20% plan to share course information with six or more individuals in the industry. Other examples of UW-Extension Cooperative Extension agricultural workforce development programs:

Simply counting educational contacts does not capture the extent of a program's reach. For example, the 1,525 agricultural professionals who attended the 2012 Wisconsin Crop Management Conference from Wisconsin, Minnesota, Iowa, Illinois, Indiana and Michigan produce a large multiplier effect as Wisconsin Cooperative 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. In 2012, extension Pesticide

Applicator Training supported 2,106 private and 4,228 commercial applicators, enabling employees of agronomic, horticulture and green industries to safely apply pesticides.

Farmers may lose a valuable pest management tool — transgenic corn hybrids that produce insect-killing proteins from the soil bacterium *Bacillus thuringiensis* (Bt). Bt-resistant Western corn rootworms (WCR) have been confirmed in Iowa and more rootworm feeding than expected appears in Wisconsin. In 2012, extension field and forage crops entomology specialist Eileen Cullen led colleagues in 6 neighboring states and a multi-state committee of 22 university scientists researching, documenting and mapping clear information on WCR Bt resistance to increase capacity to respond with IPM recommended practices among extension educators, IPM specialists and center directors, 523 crop consultants, agribusiness professionals and growers, 35 independent seed dealers and growers, and others. WCR Bt-resistance data from problem cornfields enabled extension educators and partners to deliver IPM recommendations in response to questions from farmers and their advisors. Wisconsin Pest Management Update meeting survey respondents (375 respondents, a 72% response rate) reported that the extension information they received affected 8,114,670 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.

Agriculture is the most hazardous industry, especially for inexperienced youth and Hispanic workers. After investigating the death of a Hispanic worker, the Occupational Safety and Health Administration (OSHA) issued a statewide local emphasis program that Wisconsin dairy farm compliance inspections would start in 2012, focusing on ensuring the safety of Spanish-speaking and youth workers. Working with many extension colleagues, agricultural safety and health specialist Cheryl Skjolaas acted quickly to train educational partners including OSHA staff who had never been on a dairy farm, conduct dairy farm safety reviews, build on existing youth and bilingual Dairy Worker Trainings on animal handling and skid steer safety, pilot test a comprehensive Dairy Farm Safety Short Course in English and Spanish with UW-River Falls, and develop educational programs and resources to help producers and industry representatives learn about OSHA compliance and on-farm safety. In 2012, 70 high school agricultural education and technical college instructors learned OSHA rules for training youth. Safe Operation of Tractor and Machinery training certified 421 youth working on their family farm or dairy farms.

Helping small-scale food processors is an excellent way to increase the availability of safe, wholesome products made in Wisconsin. Partnering with the Wisconsin Department of Agriculture, Trade and Consumer Protection, a food safety training program was developed for small-scale food processors vending primarily at farmers' markets. Since 2009, 573 small business owners have completed the Wisconsin Acidified Canned Foods School — 240 of those during 2012. Top foods processed were salsas, tomato sauce, pickles and relishes. Extension training helped develop new products, supporting local economies as well. Along with needed trainings, a web site now helps

small food processors navigate the course of “recipe to reality,” providing convenient information on licensing and product testing, sample process forms, and contact information for process approval.

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, UW-Madison College of Agricultural and Life Sciences and Wisconsin Association of Meat Processors, the Master Meat Crafter Training Program addresses food safety education and practical application throughout the program's 2 years. In 2012, 17 graduates earned certification as a Master Meat Crafter and 25 are on track to do so in 2014. Graduates apply and share skills needed 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.

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. The structured learning, encouragement and adult mentoring that young people receive through their participation in 4-H plays a vital role in helping them achieve future life successes. Developing life skills that enable young people to make the transition to the world of work is a major goal of 4-H programming efforts. Employers seek individuals who have excellent communication, leadership, and teamwork skills. These are among the 35 skills emphasized and developed in 4-H programs. A recent national longitudinal study found that 4-H program participants develop a greater sense of responsibility than those not in 4-H. In addition, girls in 4-H are more likely to go into fields related to science, technology, engineering and math (STEM) than their peers not in 4-H. These are all foundational skills and interests to careers within the broad scope of agricultural sciences and related disciplines. Some 2012 4-H highlights include:

- 12,827 youth enrolled in 4-H crops, horticulture and agronomic plants curricula.
- 5,286 youth enrolled in 4-H dairy-related curricula.
- 15,767 enrolled in 4-H meat animal projects with the goal of producing a safe food supply for consumers.
- A Meat Animal Quality Assurance evaluation is being conducted to assess participants' abilities related to animal health, management and handling; agriculture issues, careers and communications; sportsmanship, mentoring and leadership.

Contact: David Williams, ANRE Associate Program Director, 608-262-9309, david.williams@ces.uwex.edu

Council Structure Recommendations

The activities and results of the 2012-13 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 Systems 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 2013 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 Larson 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 2013 Annual Report.

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