

Project Title: From Farm to Tap

A Northeast Regional Collaboration for Hops Production

Team Members:

Name	Discipline	Appointment (AES, CE, Both) CE	Institution/Agency/Other
Tanner Delvalle	Horticulture	CE	Penn State University
Tom Ford	Horticulture	CE	Penn State University
Beth Gugino	Plant Pathology	CE	Penn State University
Lynn Kyme	AG Economics	AES	Penn State University
Tom Butzler	Horticulture	CE	Penn State University
Ryan Elias	Food Science	CE	Penn State University
Heather Darby	Agronomy	CE	University Of Vermont
Steven Miller	Hops Specialist	CE	Cornell University
David Hanley	Horticulture	CE	University of Maine
Jason Bolton	Food Science	CE	University of Maine
Mark Hutton	Horticulture	CE	University of Maine
Tim Weigle	Horticulture	AES	Cornell University

Team Leader Contact Information:

Name:	Michael Masiuk
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From Farm to Tap

A Northeast Regional Collaboration for Hops Production

The purpose of this planning grant is to improve collaboration amongst the researchers and Extension professional working with the hops industry in the Northeast region.

Hops Production History:

More than a century ago, northeastern United States was a prolific hops producing region. In the late 1800's, plant diseases including powdery and downy mildew rapidly spread through hop-yards leading to a rapid decline in production. Hops production eventually migrated to the Pacific Northwest where the climate was not as conducive to the occurrence of both of these pathogens. Along with the development of improved plant technology and research, products and varieties of hops now exist which can perform well in the northeastern United States. To date, limited information has been available to current and prospective growers pertaining to hops production. Collaboration among researchers and Extension educators in the Northeast will help determine which varieties of hops will best suit the northeastern climate, as well as the proper techniques to produce quality hops.

Regional Economic Impact:

The craft brewing industry recently experienced significant growth with a 17.6% increase in U.S. craft beer production and a 36% increase in craft beer exports in 2014. The Northeast region currently accounts for 30% of U.S. craft beer production and a corresponding 22% of the microbrewery industry's economic impact. (Appendices A and B)

Most hops used by Northeastern breweries are sourced from other states, most commonly Washington and Oregon. The increase in micro-brewed beer in the Northeast coupled with the trend for locally sourced agricultural products has resulted in an increased demand for locally grown and organically produced hops. A recent feasibility study conducted by the University of Vermont (2010) demonstrated that 71% of Brewers would source hops locally if available, and also indicated that a majority of Brewers would be willing to pay a premium for local hops. (<http://www.uvm.edu/extension/cropsoil/wp-content/uploads/hops-feasibility-study.pdf>)

The resurgence of interest is resulting in more hop-yards put into production throughout the Northeast, but limited information on proper management is available for these new producers.

Current Research and Extension Efforts

The Northeast Hops Alliance (<http://www.northeasthopalliance.org>) with over 200 members in the Northeast, was formed in 2001 with a mission to explore the feasibility of re-establishing commercial specialty hops production in New York and the Northeast. Both Cornell Cooperative Extension of NY and the University of Vermont Crops and Soils Team serve as advisors for the organization and have established research and Extension programs for the hops industry. This grant will allow staff in Pennsylvania and Maine to join forces with Cornell and Vermont to provide better regional coverage to an agricultural audience experiencing significant expansion.

On February 1, 2016, a full day Hops Production Workshop was held in conjunction with the Mid-Atlantic Fruit and Vegetable Convention in Hershey, Pennsylvania with 150 attendees. A research needs assessment was conducted for the Pennsylvania hops industry. (Appendix C)

New Extension Audience:

The potential audience for hops research in the Northeast is more diverse and younger than traditional agricultural Extension audiences. Hops production represents a diversification for both the Northeast agricultural product mix as well as the Extension audience, two factors that may be beneficial for Agriculture and Extension's future.

Goals:

Promote collaboration among Northeast land-grant researchers and Extension professionals working with hops production.

Objective 1: Work in close collaboration with the microbrewery industry and known private hops producers to identify current Northeast hops industry needs and potential research opportunities for Northeast land-grant universities

Task 1: Review and evaluate existing hops research and Extension efforts in the Northeast

Task 2: Conduct multistate needs assessments of hops industry

Deliverable: A comprehensive needs assessment document prioritizing research and Extension projects for the Northeast hops industry

Objective 2: Develop educational programming addressing the needs of the Northeast hops industry

Task 1: Review existing Northeast Extension educational programs

Deliverable: A three-year plan for hops educational programming in the Northeast U.S.

Objective 3: Develop a regional, multi-state Hatch proposal to address research and Extension needs associated with hops production.

Task 1: Identify the appropriate research and Extension faculty to participate

Task 2: Host a meeting to develop a multi-state proposal and further explore opportunities in hops research

Task 3: Work with microbrewery and hops industries to develop and submit a proposal to Northeastern Regional Association of State Agricultural Experiment Station Directors (NERA) for approval

Deliverable: Multi-state Hatch proposal

Budget:

The \$4,000 requested will be used to fund travel for The Northeast researchers and Extension professionals to meet in Pennsylvania during the summer, 2016 to view the recently installed hop-yard at the Rock Springs Research Farm and to:

Meet with leaders from the microbrewery and hops production industry to prioritize future research and extension efforts

Discuss leverage funding from the microbrewery industry

Outline a proposal for submissions for Hatch funding

Identify additional sources of funding for research and Extension projects

Timeline:

May – June Develop industry needs assessment

July Survey microbrewery and hops industry in Northeast US

August Meet with industry leaders and university personnel in Pennsylvania

Sept – Oct. Develop grant proposal(s)

Appendix A

Northeast US Craft Brewing Statistics

State	Barrels of Craft Beer Produced	National Rank	Economic Impact in \$Millions	National Rank
Connecticut	72,682	32nd	569	26th
Delaware	239,625	20th	264	42nd
Maine	289,646	17th	432	31st
Maryland	210,778	21st	652	23rd
Massachussets	372,883	14th	1408	13th
New Hampshire	79,952	30th	359	36th
New Jersey	67,321	34th	1236	15th
New York	948,228	8th	2,291	4th
Pennsylvania	4,074,883	1st	4,488	2nd
Rhode Island	18,041	47th	160	48th
Vermont	243,905	19th	271	41st
Washington DC	20,660	45th	149	51st
West Virginia	7,923	49th	211	46th
TOTAL - US	21,775,905		55,700	

	% of US Total		% of US Total	
Northeast US	6,646,527	30.52%	12,490	22.42%

Source: Brewers Association Website <https://www.brewersassociation.org>

Region	Total Economic Impact 2014				
	Employment (FTEs)	Labor Income	Avg. Wage	Economic Impact	Impact/ 21+ Adult
Alabama	2,624	\$107,721,000	\$41,052	\$437,633,000	\$125.53
Alaska	1,420	\$71,934,000	\$50,647	\$239,149,000	\$469.09
Arizona	8,655	\$348,934,000	\$40,317	\$959,760,000	\$203.25
Arkansas	2,010	\$81,289,000	\$40,440	\$323,795,000	\$153.03
California	50,279	\$2,456,927,000	\$48,866	\$6,886,674,000	\$251.89
Colorado	21,838	\$928,971,000	\$42,539	\$2,715,808,000	\$709.39
Connecticut	4,632	\$226,088,000	\$48,807	\$568,787,000	\$216.34
Delaware	1,710	\$73,647,000	\$43,058	\$264,138,000	\$389.08
District of Columbia	1,425	\$80,918,000	\$56,792	\$149,301,000	\$293.10
Florida	16,686	\$650,903,000	\$39,008	\$2,056,405,000	\$138.40
Georgia	8,269	\$346,614,000	\$41,915	\$1,134,453,000	\$160.78
Hawaii	1,989	\$85,498,000	\$42,979	\$231,509,000	\$221.22
Idaho	2,750	\$99,771,000	\$36,275	\$317,860,000	\$284.73
Illinois	17,059	\$761,778,000	\$44,655	\$2,271,693,000	\$247.08
Indiana	7,939	\$302,417,000	\$38,093	\$1,075,955,000	\$230.56
Iowa	4,674	\$172,508,000	\$36,912	\$636,096,000	\$285.64
Kansas	2,863	\$109,080,000	\$38,097	\$383,281,000	\$188.14
Kentucky	3,401	\$129,543,000	\$38,090	\$495,103,000	\$155.27
Louisiana	3,261	\$142,019,000	\$43,549	\$645,510,000	\$195.98
Maine	3,773	\$142,866,000	\$37,870	\$432,040,000	\$430.85
Maryland	5,492	\$238,760,000	\$43,477	\$651,624,000	\$150.66
Massachusetts	12,551	\$568,228,000	\$45,275	\$1,407,474,000	\$282.77
Michigan	14,773	\$571,606,000	\$38,693	\$1,851,480,000	\$260.03
Minnesota	8,266	\$418,200,000	\$50,592	\$1,324,248,000	\$337.59
Mississippi	1,352	\$54,117,000	\$40,031	\$222,614,000	\$103.74
Missouri	7,383	\$287,457,000	\$38,933	\$921,033,000	\$217.15
Montana	2,617	\$93,564,000	\$35,749	\$328,219,000	\$437.64
Nebraska	3,263	\$127,539,000	\$39,083	\$424,320,000	\$319.80
Nevada	6,189	\$233,345,000	\$37,703	\$480,128,000	\$236.79
New Hampshire	3,566	\$137,389,000	\$38,527	\$358,934,000	\$365.72
New Jersey	9,560	\$480,884,000	\$50,304	\$1,236,010,000	\$190.19
New Mexico	3,036	\$105,156,000	\$34,633	\$340,338,000	\$231.60
New York	19,494	\$1,054,903,000	\$54,116	\$2,920,767,000	\$201.88
North Carolina	9,522	\$374,250,000	\$39,304	\$1,200,318,000	\$168.16
North Dakota	1,253	\$51,276,000	\$40,916	\$173,543,000	\$322.90
Ohio	14,452	\$614,778,000	\$42,539	\$2,161,955,000	\$258.66
Oklahoma	2,574	\$128,345,000	\$49,870	\$415,776,000	\$151.43
Oregon	17,565	\$682,184,000	\$38,837	\$1,837,356,000	\$631.35
Pennsylvania	32,241	\$1,355,719,000	\$42,050	\$4,488,434,000	\$476.98
Rhode Island	1,421	\$59,491,000	\$41,854	\$160,216,000	\$206.39
South Carolina	3,350	\$125,877,000	\$37,573	\$443,241,000	\$127.23

South Dakota	1,355	\$47,329,000	\$34,939	\$156,843,000	\$259.87
Tennessee	6,570	\$255,101,000	\$38,831	\$753,202,000	\$159.20
Texas	23,084	\$1,112,508,000	\$48,194	\$3,769,917,000	\$204.94
Utah	3,049	\$114,368,000	\$37,514	\$389,908,000	\$208.52
Vermont	2,452	\$85,883,000	\$35,031	\$270,841,000	\$579.52
Virginia	8,906	\$381,185,000	\$42,802	\$1,045,835,000	\$173.18
Washington	14,782	\$656,185,000	\$44,392	\$1,653,998,000	\$323.92
West Virginia	1,481	\$57,960,000	\$39,131	\$211,240,000	\$152.16
Wisconsin	14,109	\$533,266,000	\$37,797	\$1,747,499,000	\$420.20
Wyoming	1,261	\$46,639,000	\$37,001	\$149,455,000	\$356.88
TOTAL	424,225	\$18,372,919,000	\$43,309	\$55,721,717,000	\$244.07

Brewers Association
www.BrewersAssociation.org



Appendix C

Survey results from full day Hops Production Workshop held at Mid-Atlantic Fruit and Vegetable Convention, Hershey Pa February 1, 2016 with 150 in attendance.

Penn State Extension would like your assistance to identify additional research that would benefit hops growers in the Mid-Atlantic region. What areas of research would benefit your production of hops? (Example: post-harvest handling, disease management, weed control, etc.) n=70

- Post-harvest handling **(16)**
- Disease management **(13)**
- Weed control **(9)**
- Any and all **(3)**
- Fertilization rates **(3)**
- Insect control **(3)**
- Processing **(3)**
- Harvesting **(2)**
- Marketing **(2)**
- Drying **(2)**
- Irrigation **(2)**
- IPM **(2)**
- Variety selection **(2)**
- Trial data
- Storage
- Small scale harvesting
- Biological disease/pest management
- Beneficial fungus
- Nematode management
- Soil, nutrient conservation (cover crops, contour strips, row establishment, biological weed control)
- FSMA impacts to hops production
- Let me get started first.
- Types of hops
- Co-op for preparing fresh hops for packaging, pelletizing, etc.
- Design practices that maximize yield (v-trellis, spacing)
- Organic practices and their effectiveness
- Trellising
- Timing of spring cutback
- Pelletizing
- Testing
- Cooperative efforts in harvesting
- Hop core analysis to content
- Lupulin production by amount
- Quality analysis (oil, alpha, beta, farnasene, linalool, hesanol)

Michael C. Masiuk

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www.linkedin.com/in/MikeMasiuk

Over 20 years of progressive Extension Education leadership with Penn State University Cooperative Extension in Horticulture. Expert in providing enrichment opportunities by forming partnerships to exchange knowledge and resources.

Strong team builder and leader skilled in attracting, developing, and empowering key talent to meet and exceed expectations. Proven success in removing roadblocks, enabling teams to achieve organizational goals and objectives.

Recognized as a critical thinker and change agent with the ability to objectively perceive the potential impact of proposed programs. Solid history of leading people through large-scale organizational transformations through transparent communication and stakeholder engagement.

AREAS OF EXPERTISE INCLUDE:

- ◆ Strategic Planning & Execution
- ◆ Extension Operations & Administration
- ◆ Program Design & Effectiveness
- ◆ Organizational Development
- ◆ Revenue Generation & Cost Recovery
- ◆ Program Staffing & Budgeting
- ◆ Stakeholder Collaborations
- ◆ Talent Recruitment, Hiring & Retention
- ◆ Outreach & Engagement
- ◆ Risk Management & Mitigation
- ◆ Training, Development & Mentoring
- ◆ Program Marketing & Advocacy

PROFESSIONAL EXPERIENCE

PENN STATE UNIVERSITY COOPERATIVE EXTENSION – University Park, PA **2012 – Present**
Assistant Director of Extension – Horticulture Programs

Direct five teams of 50 total personnel, including 25 direct reports, to develop, deliver, and evaluate statewide educational outreach and research programs. Set vision for Cooperative Extension in Pennsylvania as member of Extension Leadership Team. Administer Cooperative Extension horticulture program involving 24 county-based educators and 22 university faculty, plus state Master Gardener program comprised of 62 county programs. Liaise with industry commodity groups and college department heads. Manage \$1.7M in grant funds, \$45K endowment, and \$70K in program registration revenue.

Lead Financial Resource Development, Extension Educator Travel, International Extension, and PAP – College Pest Affecting People working groups. Serve on working groups/committees including New Worker Training, Federal Reporting System, International Programs Advisory Council, Pesticide Education Advisory Council, National Association of County Agricultural Agents, and Lake Erie Regional Grape Program Committee (Penn State-Cornell).

- ◆ **Fostered cohesion and collaboration among university faculty and extension educators** by facilitating meetings for knowledge and experience sharing and leading organizational change from county-centric to statewide approach providing coverage across all 67 counties.
- ◆ **Propelled horticulture program attendance 83%**, generating more than \$100K in program fees, by partnering in development of strategic plan for replicable programming. Offered 200+ educational events, such as symposia, workshops, webinars, and field days, that served over 10K people in 2014.
- ◆ **Increased capacity of horticulture program** by recruiting, hiring, and developing eight new talented educators in three years.
- ◆ **Expanded Master Gardener Program to reach 60 counties** by instituting new statewide approach and introducing remote delivery of Master Gardener Basic training for 14 counties to date.

- ♦ **Established and grew state endowment** for Master Gardener Program to \$45K; spearheaded launch of three county-based Master Gardener endowments as well.
- ♦ **Enhanced budget and recordkeeping process** by developing and leading implementation of centralized cost recovery accounting program to track program registration, revenue, and expenses.

PENN STATE UNIVERSITY COOPERATIVE EXTENSION – Pittsburgh, PA

2008 – 2012

County Extension Director – Allegheny County

Promoted to direct all facets of county extension program, including financial/human resource allocation, staff performance, advocacy, stakeholder relationships, and program marketing in a 2.3M metro area. Managed four grants and contracts valued at more than \$2.1M. Developed, led, and managed performance of 12 Extension Educators and 3 support staff. Prepared and managed \$300K annual operating budget.

- ♦ **Secured 25% increase in annual budget appropriation** by submitting and justifying request for additional funds based on actual needs in Allegheny County.
- ♦ **Revitalized organizational culture and established fiscal transparency/accountability** by conducting comprehensive financial audit and instituting department-wide fiscal governance systems.
- ♦ **Optimized performance and productivity** by restructuring staff to align people, their talents and interests with the most appropriate positions.
- ♦ **Elevated internal competencies and capabilities** by instituting professional development and diversity training opportunities, as well as recruiting and hiring Consumer Horticulture Educator, AG Entrepreneurship Educator, and Office Manager.
- ♦ **Transformed six blighted urban lots into low maintenance, attractive green spaces** by initiating collaborative conversion effort with five non-profits and securing \$480K in grants from RK Mellon, Heinz, and Pittsburgh foundations.
- ♦ **Strengthened relationships with Allegheny County and City of Pittsburgh officials** by increasing technical assistance to County and City departments, as well as teaming with Master Gardeners to provide educational Rain Gardens session at the County Courthouse.
- ♦ **Championed apiary science** by forming partnership with non-profit organization, Burgh Bees, to provide research-based training to 250+ individuals, developing country's first community apiary, and contributing to development of Pittsburgh's first beekeeping ordinance and pesticide research project.
- ♦ **Promoted Master Gardener program** in Allegheny County by establishing \$25K endowment.

PENN STATE UNIVERSITY EXTENSION – Pittsburgh, PA

1995 – 2008

Senior Extension Educator

Coordinated regional ornamental horticulture program including educational seminars and courses for Green Industry in Southwestern Pennsylvania. Led team of three seasonal interns. Served as primary point of contact with IT.

- ♦ **Grew program attendance** by aligning program with professional certification programs and partnering with green industry trade associations on collaborative marketing initiatives.
- ♦ **Developed, secured grant funding for, and launched nationally recognized landscape IPM website** for Green Industry with 25 insect pest management fact sheets, plus weekly pest scouting and growing degree day reports.

Additional Experience:

Penn State University Cooperative Extension: Extension Agent I Associate and Assistant Extension Agent

Masiuk Perennial Nursery – Owner and Operator

Siebenthaler's Nursery – Nursery Production Personnel
 W.H. Walker & Son Inc. – Orchard Manager

TEACHING APPOINTMENTS

CHATHAM UNIVERSITY Adjunct Professor, M.S Landscape Architecture Program	2006 – 2011
COMMUNITY COLLEGE OF ALLEGHENY COUNTY Adjunct Professor, Horticulture Program	1997 – 2011

EDUCATION

PENN STATE UNIVERSITY
Ph.D. Candidate in Agriculture and Extension Education

UNIVERSITY OF PITTSBURGH
Master of Business Administration (MBA)

OREGON STATE UNIVERSITY
Bachelor of Science in Horticulture

PROFESSIONAL DEVELOPMENT

HARVARD LAW SCHOOL/THE CHARLES HOTEL
Negotiation and Leadership: Dealing with Difficult People and Problems

AFFILIATIONS

National Association of County Agricultural Agents

COMMUNITY SERVICE

Boy Scout Merit Badge Counselor – Gardening/Landscape Merit Badges	2008 – Present
Intel International Science and Engineering Fair – Plant Science Judge	2012
National Forensic League (NFL) Judge – Pittsburgh District	2003 – 2004
First Lego League Robotics Competition Coach	2000 – 2001
Cub Scout – Webelos Den Leader	1999