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### Education

- The Ohio State University** - Ph.D. Horticulture and Crop Science, Vegetable physiology emphasis 2012  
“Biomass and composition of leafy crops as affected by abiotic conditions in fall to spring production”  
Matthew Kleinhenz- Major Advisor
- West Virginia University** - M.S. Plant and Soil Science, Horticulture emphasis 2007  
“Methods of season extension for market gardeners”  
Sven Verlinden- Major Advisor
- West Virginia University** - B.S. in Horticulture, Summa cum Laude 2005

### Professional Experience

- Asst. Prof., Residential/Consumer Horticulture Extension Specialist, UTLA, Knoxville, TN** Oct. 2014 – Present  
Description: Planning, execution, and evaluation of a residential and consumer horticulture program focusing on noncommercial fruit and vegetable production as well as ornamental landscape stewardship. This program will link state, regional and county Extension personnel along with Extension Master Gardener volunteers to provide research-based outreach and education to Tennessee residents.
- Horticulturist and Research Director, CropKing, Inc. Lodi, OH** June 2012 – Oct. 2014  
Description: Controlled environment horticultural research and teaching including planning and carrying out greenhouse experimentation as well as writing and presenting technical material to grower audiences on soilless vegetable crop production and greenhouse management.
- Post-doctoral Researcher, The Ohio State University, Wooster, OH** June 2012- Dec. 2012  
Description: Cropping systems research related to domestic and international production in addition to dissemination of results through publications and extension outreach to scientific, industry, and grower communities. (half-time)
- Graduate Research Assistant and Fellow, The Ohio State University, Wooster, OH** Jan. 2008- June 2012  
Description: Vegetable production system research including design, setup, data collection and analysis followed by dissemination of results through publications and extension outreach to scientific and grower communities.
- Graduate Research Assistant, West Virginia University, Morgantown, WV** Aug. 2005- Dec. 2007  
Description: Organic vegetable production research in the area of season extension and management of production, employees, and sales for the WVU organic research farm market garden.
- American Floral Endowment Internship, Oglevee Ltd., Connellsville, PA** Jan. - May 2005  
Description: Greenhouse grower internship focused on crop management for retail and wholesale floriculture crops.
- Urban Gardening Internship, Morgantown Beautification Commission, Morgantown, WV** May-Oct. 2004  
Description: Public horticulture internship focused on management and maintenance of city plantings and baskets.

**Americorps Energy Express Mentor**, *West Virginia University Extension*, Elizabeth, WV May- Aug. 2002, 2003  
Description: Classroom planning and management for summer reading and nutrition program.

**Production/Sales Worker**, *Sims Greenhouse*, Palestine, WV Mar. - June 1998-2002  
Description: Production and sales responsibilities in a retail/wholesale greenhouse.

### **Peer-Reviewed Publications**

Bumgarner N, Collett B, Ludwig A, and Stewart C, Establishing campus rain gardens that link student experiential learning with stakeholder education and outreach. *Acta Hort.* (In Press)

Bradley L, Bewick T, Bauske E, Langellotto G, and Bumgarner N, United States national initiative for consumer horticulture – A strategic plan. *Acta Hort.* (In Press)

Bumgarner N, Hitch J, Upchurch W, Christopherson M, Hamilton S, and Pulte A, From demonstration garden to botanic garden: The novel and successful model of the UT Gardens Crossville: Plateau discovery garden. *Acta Hort.* (In Press)

Bradley L, Behe B, Bumgarner N, Glen C, Donaldson J, Bauske E, Dorn S, Langellotto G, Assessing the economic contributions and benefits of consumer horticulture. *HortTechnology* 27(5): 1-8 (2017).

Bumgarner N, and Donaldson J, Assessing the Tennessee Extension Master Gardener program using both county coordinator and Extension volunteer perspectives. *J Human Sciences Extension.* 5:3 143-152 (2017).

Bumgarner N, and Buck J, Light emitting diode and metal halide supplemental lighting for greenhouse bibb lettuce production in the Midwestern United States. *J Appl. Hort.* 18(2): 128-132 (2016).

Bumgarner N, Scheerens J, and Kleinhenz M, Nutritional yield: A proposed index for fresh food improvement illustrated with leafy vegetable data. *Plant Foods Human Nutr.* (2012).

Bumgarner N, Miller W, and Kleinhenz M, Digital image analysis to supplement direct measures of lettuce biomass. *HortTechnology* 22:547-555 (2012).

Bumgarner N, Bennett M, Ling P, Mullen R, and Kleinhenz M, Active and passive zonal heating creates distinct microclimates and influences spring- and fall-time lettuce growth in Ohio. *HortTechnology* 22: 228-236 (2012).

Bumgarner N, Scheerens J, Mullen R, Bennett M, Ling P, and Kleinhenz M, Root-zone temperature and nitrogen affect the yield and secondary metabolite concentration of fall and spring-grown, high density lettuce. *J Sci Food Agric* 92:116-124 (2012).

Bumgarner N, Bennett M, Ling P, Mullen R, and Kleinhenz M, Canopy cover and root-zone heating effects on fall- and spring-grown leaf lettuce yield in Ohio. *HortTechnology* 21:737-744 (2011).

Bumgarner N, and Verlinden S, Effects of water inclusion in microclimate modification systems for warm and cool season vegetable crops on temperature and yield. *J Appl Hort* 12(2):87-92 (2010).

### **Extension Publications**

Manual chapters edited

Chester E, An Overview of the physical Environment, flora, and vegetation of Tennessee. In: Tennessee Extension Master Gardener Handbook. Bumgarner N, and Reese J (Eds). UT Extension Publication -PB-1845-B. (In Press)

Sams D, and Reese J, Basic botany, plant physiology, and plant classification. In: Tennessee Extension Master Gardener Handbook. Bumgarner N, and Reese J (Eds). UT Extension Publication -PB-1845-C. (In Press)

Reese J, Designing the home landscape. In: Tennessee Extension Master Gardener Handbook. Bumgarner N, and Reese J (Eds). UT Extension Publication- PB-1845-G. (In Press)

Reese J, Woody ornamentals. In: Tennessee Extension Master Gardener Handbook. Bumgarner N, and Reese J (Eds). UT Extension Publication- PB-1845-H. (In Press)

Dimond J, and Reese J, Herbaceous ornamentals. In: Tennessee Extension Master Gardener Handbook. Bumgarner N, and Reese J (Eds). UT Extension Publication- PB-1845-I (In Press).

Dismukes A, Hale F, and Klingeman W, Introduction to entomology and integrated pest management. In: Tennessee Extension Master Gardener Handbook. Bumgarner N, and Reese J (Eds). UT Extension Publication- PB-1845-M (In Press).

Harper C, Byford J, and Reese J, Wildlife around the residence. In: Tennessee Extension Master Gardener Handbook. Bumgarner N, and Reese J (Eds). UT Extension Publication- PB-1845-P (In Press).

#### Manual chapters written

Bumgarner N, The Tennessee Extension Master Gardener Program. In: Tennessee Extension Master Gardener Handbook. Bumgarner, N, and Reese J (Eds). UT Extension Publication -PB-1845-A. (In Press)

Bumgarner N, and Hanahan R, An introduction to stewardship and water management in the landscape. In: Tennessee Extension Master Gardener Handbook. Bumgarner, N, and Reese J (Eds). UT Extension Publication- PB-1845-D. (In Press)

Bumgarner N, Soil science and plant nutrition. In: Tennessee Extension Master Gardener Handbook. Bumgarner, N, and Reese J (Eds). UT Extension Publication- PB-1845-E. (In Press)

Bumgarner N, Soil management in residential gardens and landscapes. In: Tennessee Extension Master Gardener Handbook. Bumgarner, N, and Reese J (Eds). UT Extension Publication- PB-1845-F. (In Press)

Samples T, Bedwell E, Brosnan J, Bumgarner N, Hale F, Leigh B, Mote M, and Windham A, Turfgrass management in Tennessee. In: Tennessee Extension Master Gardener Handbook. Bumgarner, N, and Reese J (Eds). UT Extension Publication- PB-1845-J. (In Press)

Bumgarner N, Growing vegetables in the Tennessee home garden. In: Tennessee Extension Master Gardener Handbook. Bumgarner, N, and Reese J (Eds). UT Extension Publication- PB-1845- K (In Press).

Bumgarner N, and Sweatt P, Weed science and management in residential areas. In: Tennessee Extension Master Gardener Handbook. Bumgarner, N, and Reese J (Eds). UT Extension Publication- PB-1845- O (In Press).

#### Extension factsheets and bulletins

Bumgarner N, Ary B, Payne-Allday D, Reese C, Rose M, Sammons L, Sykes V, and Upchurch G, Tennessee home vegetable garden calendar-2018. UT Extension W-436 (2017).

Bumgarner N, Richards J, Swart J, Horticulture/Garden- Beginner. UT Extension W-413A (2017).

Bumgarner N, Richards J, Swart J, Horticulture/Garden- Intermediate. UT Extension W-413B (2017).

Bumgarner N, Richards J, Swart J, Horticulture/Garden- Advanced. UT Extension W-413C (2017).

Bumgarner N, Tennessee Extension Master Gardener program. UT Extension SP637 (revision) (2017).

Bumgarner N, Metallo R, The Tennessee vegetable garden: Small-scale microgreen production. UT Extension W-346J (2017).

Bumgarner N, The Tennessee vegetable garden: Harvest, handling and storage of vegetable produce. UT Extension W-346I (2017).

Bumgarner N, Tennessee Extension Master Gardener program. UT Extension SP635 (revision) (2016).

Bumgarner N, Tennessee Extension Master Gardener Program Guide- Volunteers. UT Extension W-099 (revision) (2016).

Bumgarner N, Tennessee Extension Master Gardener Program Guide- Coordinators. UT Extension W-226 (revision) (2016).

Bumgarner N and Carver A, The Tennessee vegetable garden: Tomatoes in the home garden. UT Extension W-346H (2016).

Bumgarner N, The Tennessee vegetable garden: Stewardship in garden soil management. UT Extension W-346G (2016).

Bumgarner N, The Tennessee vegetable garden: Season extension methods. UT Extension W-346F (2016).

Bumgarner N, The Tennessee vegetable garden: Building and using raised beds. UT Extension W-346E (2016).

Bumgarner N, Tennessee Extension Master Gardener Program Guide- Coordinators. UT Extension W-226 (revision) (2016).

Bumgarner N, Site selection and soil testing for the TN vegetable garden. UT Extension W-(346A) (2015).

Bumgarner N, Planning and planting for the TN vegetable garden. UT Extension W-(346B) (2015).

Bumgarner N, Managing plant nutrition in the TN vegetable garden. UT Extension W-(346C) (2015).

Bumgarner N, Plant management practices in the TN vegetable garden. UT Extension W-(346D) (2015).

Lockwood D, Klingeman W, Hale F, and Bumgarner N, Edible ornamental pest management: Options for controlling arthropod pests on fruiting trees and shrubs in residential landscapes. UT Extension W-339 (2015).

Bumgarner N, Tennessee Extension Master Gardener program. UT Extension SP636 (revision) (2015).

Bumgarner N, and Kleinhenz M, Grafting Guide: A pictorial guide to the cleft and splice graft methods as applied to tomato and pepper. Ohio State University Extension (2013).

Bumgarner N, Moysenko J, and Kleinhenz M, Performance of commercially produced grafted seedlings of fresh-market tomato cultivars in Ohio in 2012. MidWest Vegetable Variety Trial Reports (2013).

Kleinhenz M, and Bumgarner N, Using Brix as an indicator of vegetable quality: An overview of the practice. OSU Extension HYG-1650-12 (2012).

Kleinhenz M, and Bumgarner N, Using Brix as an indicator of vegetable quality: Linking measured values to crop management. OSU Extension HYG-1651-12 (2012).

Bumgarner N, and Kleinhenz M, Using Brix as an indicator of vegetable quality: A summary of the measurement method. OSU Extension HYG-1652-12 (2012).

Bumgarner N, and Kleinhenz M, Using Brix as an indicator of vegetable quality: Instructions for measuring Brix in cucumber, leafy greens, sweet corn, tomato, and watermelon. OSU Extension HYG-1653-12 (2012).

Bumgarner N, Jewels in the genome: Tale of the tomato green flesh mutant. <http://www.extension.org/pages/32482/jewels-in-the-genome:-tale-of-the-tomato-green-flesh-mutant> (2011).

### **Published Abstracts and Academic Presentations**

Bumgarner N, The two vital perspectives on the Extension Master Gardener program in Tennessee. National Extension Conference on Volunteerism. (2017).

Metallo R, Sams C, Kopsell D, Bumgarner N, and Kopsell D, Evaluating rank order of microgreen cultivars for biomass and water soluble carbohydrate concentrations across diverse environments. HortScience 52: SX (2017).

Duncan L, Bumgarner N, Critzer F, Edwards J, Gwinn K, Muller L, Stephens C, Velandia M, Buschermohle C, Gall E, Logan J, Ludwig A, Fryxell R, Wszelaki A, Guerry D, Kelly H, Ownley B, Lewis K, D'souza D, Jones K, Jean-Philippe S, Wilcox E, Prado M, and DeBruyn J, Foster a GIRLculture: STEM camp solving the grand challenges of the 21st century. APS Annual Meeting. 49-S (2017).

Bumgarner N, Collett B, Ludwig A, and Stewart C, Establishing campus rain gardens that link student experiential learning with stakeholder education and outreach. 6<sup>th</sup> International Conference on Landscape and Urban Horticulture, Abstracts: 90 (2016).

Bradley L, Bewick T, Bauske E, Langellotto G, and Bumgarner N, United States national initiative for consumer horticulture – A strategic plan. 6<sup>th</sup> International Conference on Landscape and Urban Horticulture, Abstracts: 70 (2016).

Bumgarner N, Hitch J, Upchurch W, Christopherson M, Hamilton S, and Pulte A, From demonstration garden to botanic garden: The novel and successful model of the UT Gardens Crossville: Plateau discovery garden. 6<sup>th</sup> International Conference on Landscape and Urban Horticulture, Abstracts: 51 (2016).

Bradley L, Bewick T, Bauske E, Meyer M, Durham R, Langellotto G, Bumgarner N, Pooler M, and Dorn S, The national initiative for consumer horticulture- A strategic plan. HortScience 51: S141 (2016).

- Bumgarner N, Donaldson J, Designing evaluation metrics that meet state needs and recognize local realities. HortScience 51: S88 (2016).
- Bumgarner N, Upchurch W, Christopherson M, and Hitch J, Taking the demonstration garden to the next level: The UT Gardens Crossville: Plateau Discovery Garden model. HortScience 51: S154 (2016).
- Ludwig A, Collett B, Ferry G, Bumgarner N, and Stewart C, Making UT Green: Creating opportunities for soaking in runoff and knowledge through experiential learning. Tennessee- Kentucky Water Professionals Meeting (2016).
- Bumgarner N, Donaldson J, Volunteer and coordinator perspectives on the Tennessee Extension Master Gardener program. HortScience 50:S210 (2015).
- Bumgarner N, Buck J, Evaluation of light emitting diode and metal halide supplemental lighting for greenhouse bibb lettuce production in the midwest United States. HortScience 49:S273 (2014).
- Bumgarner N, Hansen R, McMahon R, Showell M, and Carpenter R, Investigating the incorporation of microbial probiotics in hydroponic lettuce production in Ohio. HortScience 48: S293 (2013).
- Bumgarner N, Francis D, Hu B, Moyseenko J, Kleinhenz M, The composition, more so than yield, of organic field-grown tomato fruit is affected by grafting and rootstock. HortScience 48: S174 (2013).
- Bumgarner N, Short S, Ballard C, Schmitz D, Vodovotz Y, Kleinhenz M, Can locally-grown crops replace nonfat dry milk in ready-to-use therapeutic foods? Innovative malnutrition solutions for Haiti. HortScience 48: S240 (2013).
- Bumgarner N, Moyseenko J, Francis D, and Kleinhenz M, Grafted tomato plant performance in soil differing in management history: Fruit Yield. Annual International Conference on Methyl Bromide Alternatives. Maitland, FL (2012).
- Bumgarner N, and Kleinhenz M, Rootstock and grafting effects on tomato fruit yield and quality in an organic, multi-harvest system. Annual International Conference on Methyl Bromide Alternatives. Maitland, FL (2012).
- Bumgarner N, Scheerens J, and Kleinhenz M, An index of fresh vegetable nutritional value which incorporates biomass yield and crop composition. HortScience 47: S149 (2012).
- Kleinhenz M, and Bumgarner N, Active and passive microenvironment management effects on temperature profiles and crop yield in Ohio low and high tunnel systems. HortScience 47: S182 (2012).
- Bumgarner N, Ling P, Lee W, and Hansen R, Hydroponic production of leafy crops with alternative lighting under Ohio winter conditions. HortScience 47: S189 (2012).
- Bumgarner N, Kleinhenz M, Root and shoot zone temperature management in temperate zone high tunnel vegetable production: Profiles, influences and prospects. ISHS International High Tunnel Symposium (2011).
- Bumgarner N, Kleinhenz M, Ling P, Mullen R, Bennett M, and Scheerens J, Microclimate effects on Ohio-grown baby lettuce: biomass accumulation and composition HortScience 45(8): S100-101 (2010).
- Bumgarner N, Kleinhenz M, West J, Miller W, and Ling P, Digital image analysis: A substitute for destructive measures in lettuce production research? HortScience 45(8): S103 (2010).
- Kleinhenz M, Bumgarner N, Miller W, West J, and Ling P, Digital image analysis in lettuce production research: associations between predicted and actual leaf area and biomass as influenced by growing condition, growth stage and variety. 28<sup>th</sup> International Horticultural Congress, Abstracts Vol. 1: 182 (2010).

Kleinhenz M, Bumgarner N, Ling P, Mullen R, Bennett M, and Scheerens J, Off-Season microclimate effects on baby lettuce in the U.S. midwest with attention to leaf yield and nutritional makeup. 28<sup>th</sup> International Horticultural Congress, Abstracts Vol. 2 (Symposia): 597 (2010).

Bumgarner N, and Kleinhenz M, Aerial and root zone effects on fall-spring grown lettuce yield and quality. Great Lakes Vegetable Working Group Annual Meeting (2010).

Bumgarner N, and Kleinhenz M, Root and shoot zone abiotic conditions to optimize vegetable yield and nutritional value. OSU Horticulture and Crop Science Dept. Graduate Research Retreat (2008).

Bumgarner N, and Verlinden S, Season extension methods for market gardeners HortScience 42:954 (2007).

### **Other Relevant Educational Resources**

Hall C, Thilmany D, Mellard S, Gray J, Hamrick D, Altman K, Behe B, Bumgarner N, Calabro J, Carson J, Gouge D, Miller M, Parker P, and McBride P, #Plants Do That- The Science, Art, and Business of Plants. National Initiative for Consumer Horticulture (2017). <https://consumerhort.org/wp-content/uploads/2017/03/PlantsDoThat.pdf>

Viriden C, and Bumgarner N, Greenhouse introduction training handbook-NIFA SPECA grant training materials (2017).

Bumgarner N, Hydroponics introduction handbook- NIFA SPECA grant training materials (2017).

Bumgarner N, and Sykes V, Tennessee home garden variety trial program (2017). <https://youtu.be/pKdzNnQVSis>

Bumgarner N, The Tennessee vegetable garden- through the seasons. Home fruit and vegetable workgroup training series: Introduction (2017). [https://liveutk-my.sharepoint.com/personal/nbumgarn\\_utk\\_edu/\\_layouts/15/guestaccess.aspx?folderid=14fd1a2d7ae8e446995311b4cfda7cd3d&authkey=ASk38tu261e7fbmmJMbqbKE](https://liveutk-my.sharepoint.com/personal/nbumgarn_utk_edu/_layouts/15/guestaccess.aspx?folderid=14fd1a2d7ae8e446995311b4cfda7cd3d&authkey=ASk38tu261e7fbmmJMbqbKE)

Bumgarner N, The Tennessee vegetable garden- Site selection. Home fruit and vegetable workgroup training series (2017).

Bumgarner N, The Tennessee vegetable garden- Plants and seeds. Home fruit and vegetable workgroup training series (2017).

Bumgarner N, The Tennessee vegetable garden- Cool and warm season plants. Home fruit and vegetable workgroup training series (2017).

Bumgarner N, The Tennessee vegetable garden- Small space gardening. Home fruit and vegetable workgroup training series (2017).

Rose M, and Bumgarner N, The Tennessee vegetable garden- Growing through the seasons. Home fruit and vegetable workgroup training series (2017).

Bumgarner N, What's wrong with my tomatoes? Home fruit and vegetable workgroup training resources (2017).

Bumgarner N, Basic disease questions in the home garden. Home fruit and vegetable workgroup training resources (2017).

Bumgarner N, Introduction to hydroponics and soilless growing systems- Module 1 SPECA teaching resources (2017). [https://drive.google.com/open?id=0B\\_h08yYv1zwtZGNUtklKcW04YW5s](https://drive.google.com/open?id=0B_h08yYv1zwtZGNUtklKcW04YW5s)

Bumgarner N, Hydroponic businesses and careers- Module 3 SPECA teaching resources (2017).

Bumgarner N, Soilless solutions and plant nutrition- Module 5 SPECA teaching resources (2017).

Bumgarner N, Growing environments- Module 6 SPECA teaching resources (2017).

Bumgarner N, and Bowen C, Grafted tomato trials for the home garden (2016). [https://www.youtube.com/watch?v=s\\_09v7bL\\_2E](https://www.youtube.com/watch?v=s_09v7bL_2E)

Bumgarner N, Mulching in the home garden (2016). <https://www.youtube.com/watch?v=5FfY43AUZ5E>

Bumgarner N, Disease and insect challenges in the home garden (2016). [https://www.youtube.com/watch?v=s\\_09v7bL\\_2E](https://www.youtube.com/watch?v=s_09v7bL_2E)

Summer update of AAS trials in the UT Gardens (2016). <https://www.youtube.com/watch?v=yfOHio-jG5E>

Bumgarner N, and Carver A, Tomato fertilization and pruning for the home grower (2016). <https://www.youtube.com/watch?v=q7olU7LUDis>

Bumgarner N, An introduction to soils – TEMG intern training presentation (2016).

Metallo R, and Bumgarner N, Microgreens for the home grower (2016). <https://www.youtube.com/watch?v=00k1QtSbfug>

Bumgarner N, An introduction to plant biology and physiology- TEMG intern training presentation (2016).

Bumgarner N, Greenhouse IPM (2016).

Bumgarner N, AAS vegetables for the gardener (2016).

Bumgarner N, Growing small and tall (2016).

Bumgarner N, Church and community food pantry gardens- C3 handouts (2016).

Bumgarner N, Can grafted tomatoes be a benefit to you? (2015).

Bumgarner N, The joys of growing small: Microgreens for the home greenhouse (2015).

Bumgarner N, Fall vegetable gardening (2015).

Bumgarner N, Talking Tomatoes: 2015 trial lessons in home tomato production (2015).

Bumgarner N, Home vegetable garden options for 2015 (2015).

Bumgarner N, Finding time to garden- letting a little leafy in our lives (2015).

Bumgarner N, Gardening in small spaces (2015).

Bumgarner N, and Carver A, Tomato training video for homeowners (2015). <https://www.youtube.com/watch?v=lgXVowUe97c>

Samples T, and Bumgarner N, Native and ornamental grasses for Tennessee landscapes (2015).

Bumgarner N, An introduction to Tennessee Extension Master Gardeners (2015).

Bumgarner N, Where to begin with fall gardening (2015).



## University Publications/Trade Articles/News Stories/Reports

Become a citizen scientist with a backyard garden. UTIA News You Can Use (October 2017)

Home garden trials. UTIA AgCast. (2017) <https://soundcloud.com/user-414026272/agcast-home-garden-trials>

Cliff's notes for soil testing. Tennessee Smart Yards Newsletter (May 2017)

Heucherella- UT Gardens June Plant of the month (2017).

Could the solution be solutions? UT Gardens Cultivate Magazine (Fall 2017).

Hills and holler horticulture. UT Gardens Cultivate Magazine (Spring 2017).

Home garden variety trial news story, UTIA. (2017). <https://www.youtube.com/watch?v=faxm7xs3IG0>

Bell peppers- Tennessee Gardener Magazine. (June 2017)

Basil- Tennessee Gardener Magazine. (May 2017)

Pumpkins- Tennessee Gardener Magazine. (April 2017)

Broccoli- Tennessee Gardener Magazine. (February 2017)

Micro-sized vegetable plants with full-sized flavor. Mountain Escapes Magazine (2017).

<https://issuu.com/mountainescapemagazine/docs/mountainescapes-may2017-issuu>

The Family Plot, WKNO, Quick tip. Memphis, TN (2017). <http://www.familyplotgarden.com/twig-ndash-volunteer-plants.html>

The Family Plot, WKNO, Quick tip. Memphis, TN (2017). <http://www.familyplotgarden.com/twig---when-to-pick-okra.html>

The Family Plot, WKNO, Pineapple lily. Memphis, TN (2017). <http://www.familyplotgarden.com/pineapple-lily.html>

The Family Plot, WKNO, Compact vegetables. Memphis, TN (2017). <http://www.familyplotgarden.com/compact-vegetables.html>

Big on Minis – John Deere Homestead Magazine (2017).

Putting our landscapes to work: Rain gardens (reprint). Lawn and Landscape (2016).

The Family Plot garden minute, WKNO, Watermelon challenges. Memphis, TN (2016).

<https://www.youtube.com/watch?v=b5Kwi68eURk>

The Family Plot, WKNO, Late summer garden challenges. Memphis, TN (2016). <http://video.wkno.org/video/2365561687/>

The Family Plot, WKNO, Growing home microgreens. Memphis, TN (2016). <http://video.wkno.org/video/2365559014/>

Tomato Demonstration, UTIA. Knoxville, TN (2016). <https://www.youtube.com/watch?v=hvkWH-bnekE>

Talk of the Town interview, NewsChannel 5. Nashville, TN (2016).

Microgreens, UTIA. Knoxville, TN (2016). <https://www.youtube.com/watch?v=C5fVXpr7xQY>

Extension volunteerism, UTIA. Knoxville, TN (2016). <https://www.youtube.com/watch?v=ddzmOEdotVs>

Reduce, Reuse, and Recycle. Tennessee Conservationist (2016).

Growing basil. Out Here Magazine (2016).

Grafted tomatoes- UT Gardens September Plant of the Month (2016).

Putting our landscapes to work: Rain gardens. Tennessee Greentimes (Summer 2016).

When life gives you balconies, grow microgreens. UT Gardens Magazine (Winter 2016).

Bring on the veggies. UT Gardens Magazine (Spring 2016).

News you can use- garden plant management (Spring 2016).

Edamame- UT Gardens September Plant of the Month (2015).

Sowing Seeds for the Future- the TN Junior Master Gardener Program. UT Gardens Magazine (Fall 2015).

Introduction. Tennessee Green Times (Summer 2015).

Taking Root. UT Gardens Magazine (Spring 2015).

Statewide Leadership for Home and Consumer Horticulture. Tennessee, Land, Life and Science (2015).

The Family Plot, WKNO, AAS trial overview. Memphis, TN (2015). <http://video.wkno.org/video/2365561687/>

The Family Plot, WKNO, Tennessee Extension Master Gardener program. Memphis, TN (2015). <http://video.wkno.org/video/2365559014/>

Kingswood school garden video, UTIA. Kingswood, TN (2015). <https://www.youtube.com/watch?v=sptK42WqN1Y>

Prime Time Drive 101.5WNWS- Summer Celebration interview. Jackson, TN (2015).

Urban Gardening Festival interview, Channel 2 WKRN. Nashville, TN (2015).

Garden Talk Radio, 94.3 WNFZ. Knoxville, TN (2015).

Using fruit and veggie data. Produce Grower interview. Lodi, OH (2014). <http://www.producegrower.com/CropKing-produce-data-points.aspx>

Increase yields from spring and fall techniques. Vegetable Growers News, pg. 30-31 (Feb. 2013).

Microclimates: Getting returns from fall and spring. Vegetable Growers News pg. 46 (Dec. 2012).

### **Other Creative Activities**

- Site developer, manager and editor for the Tennessee Extension Residential Horticulture website. <https://uthort.com>
- Manager for UT Master Gardener Instagram account. [https://www.instagram.com/ut\\_mastergardeners/](https://www.instagram.com/ut_mastergardeners/)

- Manager for UT Residential and Consumer Horticulture YouTube channel. <https://www.youtube.com/channel/UCjS3d1IkH1OZ1Z2qPvhgfQ>
- Collaborator on revision and redesign of the Tennessee Extension Master Gardener Database for volunteer education and service reporting statewide. (2014- present)
- Serve as manager and editor for the Tennessee Extension Master Gardener Website. (2015-present) <https://extension.tennessee.edu/MasterGardener/Pages/default.aspx>
- Development of new TEMG volunteer reporting database
- Developed and contributed monthly research and evaluation articles to the CropKing greenhouse blog (Nov. 2012- Nov. 2014).<https://www.cropking.com/blog>
- Edited and revised the CropKing Growers Manual, which is a component of all commercial greenhouse system packages. (2012-2013)
- Redesign and revision of two-day training program for current and prospective CropKing growers and customers. (2013)
- Fertilizer Composition and Method Provisional Patent Application OSU1159\_293A

### **Extension Education and Stakeholder Outreach**

Since 10/21/2014:

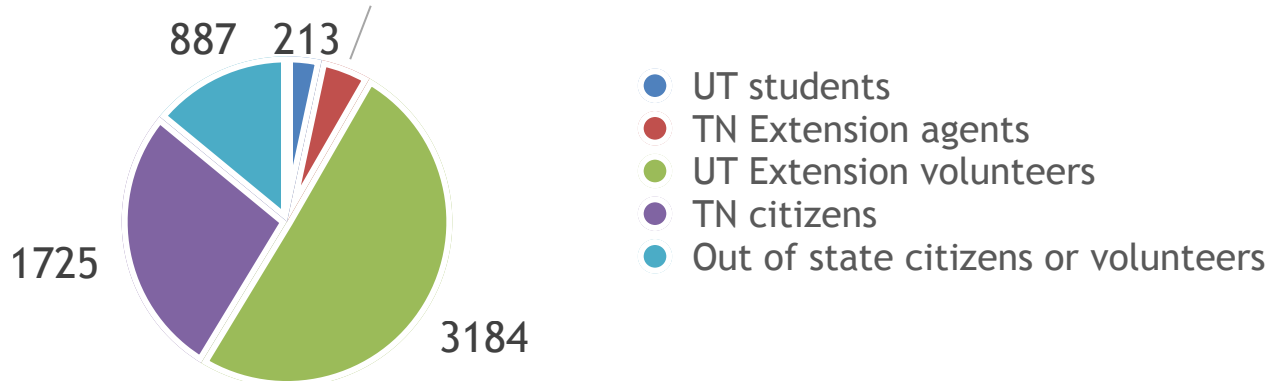
#### Out of state/Invited

- When the great outdoors just isn't enough- home greenhouses- International Master Gardener Conference
- Engaging secondary students in agricultural science career paths through integration of controlled environment food production education- NIFA Project Directors Meeting
- Surveying Master Gardeners- Arkansas Master Gardener Leadership Conference
- Microgreens at home- Abingdon, VA Garden Faire
- Know your varieties- Mississippi Tomato Short Course
- What you will learn in year 1- Mississippi Tomato Short Course
- Tomato cultivars for hydroponic producers- Mid Atlantic Fruit and Vegetable Convention
- Microbial probiotics in hydroponic lettuce- Mid Atlantic Fruit and Vegetable Convention
- Root zone temperature management- Mid Atlantic Fruit and Vegetable Convention
- Cultivar trialing- American Hort Grow-Pro Conference
- Balancing yield and quality in greenhouse tomato production- American Hort Grow-Pro Conference
- Balancing yield and quality in greenhouse cucumber production- American Hort Grow-Pro Conference
- Introduction to greenhouse vegetable production- Michigan Greenhouse Growers Expo

#### In-state

- 8 Statewide or regional Tennessee Extension Master Gardener conferences
- 1 grant-funded professional development workshop
- 3 Statewide residential and consumer horticulture planning retreats
- 9 Extension agent in-services/planning events organized and led
- 10 Extension agent in-services/planning event participation
- 78 meeting/workshop session presentations to Extension Master Gardener audiences
- 50 meeting/workshop session presentations to residents or producers in Tennessee

## Direct Teaching Contacts by Audience at UT



Prior to 10/21/2014:

- 37 presentations to industry/commercial producer audiences
- 14 presentations to academic/Extension stakeholder audiences

### Teaching and Mentoring Contributions

Since 10/21/2014:

- Co-Instructor: PLSC 504 (Fall 2015, Spring 2016)
- Guest lecturer: PLSC 330, PLSC 115
- Committee member for 3 graduate student committees as of Fall 2017
- Supervisor for 2 undergraduate interns
- Supervisor for 3 undergraduate student

Prior to 10/21/2014:

- Guest lecturer for 4 OSU or WVU classes
- Co-instructor for 1 summer WVU class (Hort 293 home gardening)

### Grants, Contracts, and Funding (awarded)

- Home Fruit and Vegetable Workgroup, Residential and Consumer horticulture leadership team funding proposal- Home Vegetable Training and Trialing Program. (\$9,392)-2017
- Bumgarner N, Richards J, Stephens C, and Sarver D, Engaging secondary students in agricultural science career paths through integration of controlled environment food production. USDA-NIFA SPECA. (\$45,055)- 2016
- Residential and Consumer horticulture leadership team funding proposal- Tennessee Smart Yards Program Revision. Tennessee Extension Funding Proposal. (\$18,800)- 2016
- Duncan L, Bumgarner N, Critzer F, Edwards J, Gwinn K, Muller L, Stephens C, Velandia M, Buschermohle C, Gall E, Logan J, Ludwig A, Fryxell R, Wszelaki A, Guerry D, Kelly H, Ownley B, Lewis K, D'souza D, Jones K, Jean-Philippe S, Wilcox E, Prado M, and DeBruyn J, Foster a GIRLculture: a girls STEM camp solving the grand challenges of the 21st century, USDA-NIFA (\$53,000)- 2015
- Bumgarner N, UTIA AgResearch travel grant (\$1,500)- 2015

- Bumgarner N, Kleinhenz M, Preparing farmers to meet quality goals, Paul C. and Edna H. Warner Endowment Fund for Sustainable Agriculture Interdisciplinary Grant for On-Farm Research (\$4,250) - 2011
- Bumgarner N, Kleinhenz M, Fall through spring sustainable organic lettuce production in Ohio. Paul C. and Edna H. Warner Endowment Fund for Sustainable Agriculture Interdisciplinary Grant for On-Farm Research (\$4,000)- 2010
- Bumgarner N, Concurrent gains in the Biomass and nutritional yield of vegetable cropping systems will enhance their roles as drivers of prosperity and human health. The Ohio Agricultural Research and Development Center Research Enhancement Competitive Graduate Student Grants Program (\$5,000) - 2009

### **Research and Outreach Collaborations (not grant unfunded)**

Since 10/21/2014:

- Collaboration on home vegetable training series
- Tomato grafting and variety trials at six county Extension demonstration sites
- Junior Master Gardener program expansion with FCS and 4-H specialists
- Collaborations on TN Smart Yards programming with BESS faculty and TN Water Resources Center
- Food production contribution to CDC project with FCS
- All American Selections edible trial coordinator and judge
- GreenStalk container demonstration and evaluation

Prior to 10/21/2014:

- 39 vegetable cultivar or production system trials or studies

### **Academic Honors and Awards**

- American Society for Horticultural Science Consumer Horticulture and Master Gardener Working Group Distinguished Achievement Award, 2017
- Dutch and Marilee Cavender Publications Award- University of Tennessee, 2017
- CAFCS Outstanding Service to Students- The Ohio State University, 2015
- Crop Science Society of America Gerald O. Mott Graduate Student Meritorious Award- 2011
- American Society for Horticultural Science Student Travel Grant- 2010
- Susan L. Huntington Distinguished Ohio State University Fellowship -2008
- American Society for Horticultural Science Industry Division Student Travel Grant - 2007
- West Virginia University Order of Augusta -2005
- West Virginia University Foundation Outstanding Senior- 2005
- West Virginia University Division of Plant and Soil Sciences - Outstanding Senior -2005
- American Floral Endowment -Vic and Margaret Ball Internship –2005
- Gamma Sigma Delta Agriculture Honorary –Outstanding Sophomore, Junior and Senior- 2003, 2004, 2005

### **Academic and Professional Service**

- American Society for Horticultural Science Consumer Horticulture and Master Gardener Working Group Vice-Chair. 2017-2018
- Tennessee Extension Home Fruit and Vegetable Workgroup member
- Tennessee Extension Master Gardener Workgroup Chair
- Tennessee Extension Sustainable Landscapes Workgroup member
- Tennessee Extension Residential and Consumer Horticulture Leadership Team member
- University of Tennessee, Department of Plant Sciences: Seminar Committee
- University of Tennessee Institute of Agriculture: Search committee, graphic artist; Search committee, assistant director of Advancement; Search committee, Jefferson Co. ANR agent
- University of Tennessee Extension: Master Producer Oversight Committee; 4-H Congress ANR faculty representative
- Southern Region Consumer Horticulture Coordinating Committee: Member of writing committee, Committee Chair 2017
- National Initiative for Consumer Horticulture- Economic Committee member

- Peer-review: Provided peer-reviews to Agronomy, HortTechnology, Renewable Agriculture and Food Systems, International Journal of Vegetable Science, EMG National Committee resources
- Serving on Industry Advisory committee and Outstanding Industry Scientist Committee- ASHS -2013, 2014
- Ohio Agricultural Research and Development Center Library Review Committee- 2011
- Ohio Agricultural Research and Development Center Scholars (Graduate student and post-doctoral organization)- founding member, vice-president and secretary- 2011, 2012
- The Ohio Agricultural Research and Development Center Research Enhancement Competitive Graduate Student Grants review panel - 2010, 2011
- Horticulture & Crop Science Department Graduate Research Retreat Planning Committee Chair - 2011
- ASHS session moderator for National Conference- 2010, 2016
- Horticulture & Crop Science Department Graduate Research Retreat Competition Chair - 2009, 2010
- Horticulture & Crop Science Department Graduate Research Retreat Planning Committee - 2008
- Co-mentor for the OARDC Research Internship Program student- 2009

#### **Professional Affiliations**

- American Society for Horticultural Science
- International Society for Horticultural Science
- Gamma Sigma Delta
- Tennessee Association of Agricultural Agents and Specialists