

**G. Craig Yenko**, William Neal Reynolds Distinguished Professor, Department of Horticultural Science, Box 7609, North Carolina State University, Raleigh, NC 27965-7609; Phone: 919.513.7417; Email: craig\_yenko@ncsu.edu

### **Professional Interests**

Potato and Sweetpotato Breeding, Applications of Genomics, Molecular Biology and Plant Biochemistry to Plant Improvement, Plant Resistance to Insects and Pathogens, Development of Value-Added Products from Crops, International Development

### **Training**

Ph.D.	Cornell University	Entomology, Plant Breeding (Minor)	1993
M.S.	Washington State University	Entomology	1985
B.S.	Pennsylvania State University	Bioscience	1982

### **Professional Experience**

2015 – present **William Neal Reynolds Distinguished Professor and Lead, Sweetpotato and Potato Breeding and Genetics Programs**, Dept. of Horticultural Science, NC State University

2010 (Jan.-Jun.) **Visiting Scholar**, African Centre for Crop Improvement, University of KwaZulu-Natal, Pietermaritzburg, South Africa

2009-present **Professor and Lead, Sweetpotato and Potato Breeding and Genetics Programs**, NCSU

2003-2009 **Associate Professor and Lead, Sweetpotato and Potato Breeding and Genetics Programs**, NCSU

1997-2003 **Assistant Professor and Lead, Sweetpotato and Potato Breeding and Genetics Programs**, NCSU

1996-1997 **Visiting Assistant Professor, Potato Breeding and Genetics Program**, NCSU

1995-1996 **Senior Research Fellow**, El Centro Internacional de Agricultura Tropical (CIAT), Colombia

### **Professional Memberships and Activities**

American Association for the Advancement of Science, 2001 - present

American Society for Horticultural Science, 1996 - present

Crop Science Society, 2010 - present

International Society for Horticultural Science – 1997 – present

International Society for Tropical Root Crops - 1997 – present

NE-1731 Potato Variety Development Project - NC Project Coordinator

The Potato Association of America – 1992 - present

Sweetpotato Collaborators Group, 1997 – present, Chair - 2004

Technical Advisor, USDA ARS Sweetpotato Crop Advisory Committee, 1997-present, Chair – 2004-2009

Technical Advisor, NRSP-6 USDA ARS Potato Gene Bank, 2011-present

### **Scholarly and Professional Honors (last 5 years)**

Outstanding Global Engagement Award, NC State International Operations Council, 2016

William Neal Reynolds Distinguished Professor, 2015

SERA-005 Project – National Sweetpotato Collaborators Group, Regional Multistate Excellence in Research Award, 2013. Awarded by SAAESD

SERA-005 Project – National Sweetpotato Collaborators Group, National Multistate Excellence in Research Award, 2013. Awarded by APLU

Outstanding International Horticulturalist Award, Amer. Soc. Hort. Sci., 2013

Julian C. Miller, Sr. Distinguished Researcher Award, Southern Region of the Amer. Soc. Hort. Sci., 2012

**List of Published Work in Research Gate and Google Scholar:**

[https://www.researchgate.net/profile/Craig\\_Yencho/](https://www.researchgate.net/profile/Craig_Yencho/)

<https://scholar.google.com/citations?user=vODst80AAAAJ&hl=en>

**Peer-Reviewed Publications (since 2015)**

1. Eserman, L.A., Marc SM Sosef, Rosângela Simão-Bianchini, Timothy MA Utteridge, Juliana CJ Barbosa, Maria Teresa Buriel, Lars W Chatrou, Keith Clay, Geadelande Delgado, Thibaut E Desquilbet, Priscila PA Ferreira, José R Grande Allende, Alexis L Hernández, Guillermo Huerta-Ramos, Robert L Jarret, Roberta K Kojima, Sven Landrein, Juliana AAM Lourenço, Ine De Man, Richard E Miller, Sushant More, André LC Moreira, Ithe Mwanga-Mwanga, Stella Nhanala, Mayara Pastore, Fernanda S Petrongari, Ponprom Pisuttimarn, Pimwadee Pornpongrungrueng, Joanna Rifkin, Francisco DS Santos, Vinod B Shimpale, Simone S Silva, John R Stinchcombe, Paweena Traiperm, Liziane V Vasconcelos, Ming Li Wang, Arthur Villordon, Jun Yang, G Craig Yencho, Bettina Heider, Ana Rita G Simões. 2020. Proposal to change the conserved type of *Ipomoea*, nom. cons. (Convolvulaceae). *Taxon*. 69. 1369-1371.
2. Gemenet, D.C., C. M. Kitavi, M. David, D. Ndege, R. Ssali, J. Swanckaert, G. Makunde, G.C. Yencho, W. Grüneberg, E. Carey, R. Mwanga, M. Andrade, S. Heck, Simon and H. Campos. 2020. Development of diagnostic SNP markers for quality assurance and control in sweetpotato [*Ipomoea batatas* (L.) Lam.] breeding programs. *PLOS ONE*. 15. e0232173. 10.1371/journal.pone.0232173.
3. Gemenet, D.C. H. Lindqvist-Kreuzer, B. De Boeck, G. Pereira, M. Mollinari, Z-B. Zeng, G.C. Yencho, and H. Campos. 2020. Sequencing depth and genotype quality: accuracy and breeding operation considerations for genomic selection applications in autopolyploid crops. *Theoretical and Applied Genetics*. 133. 3. 10.1007/s00122-020-03673-2.
4. Nhanala, Stella & C. Yencho. 2020. Assessment of the potential of wild *Ipomoea* spp. for the improvement of drought tolerance in cultivated sweetpotato *Ipomoea batatas* (L.) Lam. *Crop Science*. 61. 10.1002/csc2.20363.
5. Pereira, G., D.C. Gemenet, M. Mollinari, B.A. Olukolu, J.C. Wood, F. Diaz, V. Mosquera, W.J. Gruneberg, A. Khan, C.R. Buell, G.C. Yencho and Z-B. Zeng. 2020. Multiple QTL mapping in autopolyploids: a random-effect model approach with application in a hexaploid sweetpotato full-sib population. *Genetics* 120.303080.
6. Rojas, C., K. Pecota, C. Almeyda, C. Yencho, and L. Quesada-Ocampo. 2021. Sweetpotato root development influences susceptibility to black rot caused by the fungal pathogen *Ceratocystis fimbriata*. *Phytopathology*. 10.1094/PHYTO-12-20-0541-R.

7. Schwarz, T. E. Davis, C. Yencho, K. Pecota, C. Li, and C. Heim, Chris. 2020. Screening sweetpotato genotypes for resistance to a North Carolina isolate of *Meloidogyne enterolobii*. Plant Disease. 10.1094/PDIS-02-20-0389-RE.
8. Zhou, Chenxi, B. Olukolu, D.C. Gemenet, S. Wu, W. Grüneberg, M. Cao, Z. Fei, Z-B. Zeng, A. George, A. Khan, C. Yencho, and L. Coin, Lachlan. 2020. Assembly of whole-chromosome pseudomolecules for polyploid plant genomes using outbred mapping populations. Nature Genetics. 52. 1256-1264. 10.1038/s41588-020-00717-7.
9. Mollinari, M., Olukolu, B. A., S. Pereira Guilherme, Khan, A., Gemenet, D., Yencho, C., & Zeng, Z.-B. 2019. Unraveling the hexaploid sweetpotato inheritance using ultra-dense multilocus mapping. G3: Genes|Genomes|Genetics. 2020-01.
10. Musabyemungu, A. P. Wasswa, A. Alajo, D. Chelangat, M. Otema, P. Musana, P. Rukundo, P. Gibson, R. Edema, K. Pecota, C. Yencho, and B. Yada, Benard. 2019. Adaptability of a U.S. purple-fleshed sweetpotato breeding population in Uganda. Australian Journal of Crop Science. 13. 17-25. 10.21475/ajcs.19.13.01.p1023.
11. Jacobs, R., T. Adhikari, J. Pattison, G.C. Yencho, G. Fernandez & F. Louws. 2019. Inheritance of resistance to *Colletotrichum gloeosporioides* and *C. acutatum* in strawberry. Phytopathology, 109(3), 428–435.
12. Zuleta-Correa, A. M. Chinn, M. Alfaro Córdoba, V.D. Truong, G.C. Yencho, and J. Bruno-Barcelona. 2019. Use of unconventional mixed acetone-butanol-ethanol solvents for anthocyanin extraction from purple-fleshed sweetpotatoes. Food Chemistry. 314. 125959. 10.1016/j.foodchem.2019.125959.
13. Wadl, P., B. Olukolu, S. Branham, R. Jarret, G.C. Yencho & D. Jackson. 2018. Genetic diversity and population structure of the USDA sweetpotato (*Ipomoea batatas*) germplasm collections using GBSpoly. Frontiers in Plant Science, 9. DOI: 10.3389/fpls.2018.01166.
14. Wu, S. et al. 2018. Genome sequences of two diploid wild relatives of cultivated sweetpotato reveal targets for genetic improvement. Nature Communications. DOI: 10.1038/s41467-018-06983-8.
15. Endelman J. B., C. A. Schmitz Carley, P. C. Bethke, J. J. Coombs, M. E. Clough, W. L. da Silva, W. S. De Jong, D. S. Douches, C. M. Frederick, K. G. Haynes, D. G. Holm, J. C. Miller, P. R. Muñoz, F. M. Navarro, R. G. Novy, J. P. Palta, G. A. Porter, K. T. Rak, V. R. Sathuvalli, A. L. Thompson and G. C. Yencho. 2018. Genetic variance partitioning and genome-wide prediction with allele dosage information in autotetraploid potato. Genetics 118.300685.
16. Massa, A. N. Manrique-Carpintero, J. Coombs, K. Haynes, P. Bethke, T. Brandt, S. Gupta, C. Yencho, R. Novy, and D. Douches. 2018. Linkage analysis and QTL mapping in a tetraploid russet mapping population of potato. BMC Genetics. 19. 10.1186/s12863-018-0672-1.
17. Schmitz Carley, C. A., J. J. Coombs, M. E. Clough, W. S. De Jong, D. S. Douches, K. G. Haynes, C. R. Higgins, D. G. Holm, J. C. Miller, F. M. Navarro, R. G. Novy, J. P. Palta, D. L. Parish, G. A. Porter, V. R. Sathuvalli, A. L. Thompson, G. C. Yencho, L. Zotarelli, and J. B. Endelman. 2018. Genetic Covariance of Environments in the Potato National Chip Processing Trial. Crop Sci. 0. doi:10.2135/cropsci2018.05.0314
18. Sato, A., V-D, Truong, S. Johanningsmeier, R. Reynolds, K.V. Pecota. G.C. Yencho. 2018. Chemical constituents of sweetpotato genotypes in relation to texture of processed French Fries. J. Food Science. Journal of Food Science, 83(1): 60-73.

19. Zhou C., T. Duarte, R. Silvestre *et al.* 2018. Insights into population structure of East African sweetpotato cultivars from hybrid assembly of chloroplast. *Gates Open Res* 2018, **2**:41.
20. Anyanga, M.O., B. Yada, G.C. Yencho, et al. 2017. Segregation of hydroxycinnamic acid esters mediating sweetpotato weevil resistance in storage roots of sweetpotato. *Frontiers in Plant Science*, Vol. 8: Article 1011.
21. Endelman, J.B., C.A. Schmitz Carley, D.S. Douches, et al. 2017. Pedigree reconstruction with genome-wide markers in potato. *Am. J. Potato Res.* 94(2): 184-190.
22. Schumann, M.J., Z-B Zeng, M.E. Clough, G. C. Yencho. 2017. Linkage map construction and QTL analysis for internal heat necrosis in autotetraploid potato. *Theor. Appl. Gen.* DOI: 10.1007/s00122-017-2941-1.
23. Yada, B., A. Alajo, G.N. Ssemakula, G. Brown-Guedira, M.A. Otema, P.C. Stevenson, R.O.M. Mwanga, G.C. Yencho. 2017. Identification of simple sequence repeat markers for sweetpotato weevil resistance. *Euphytica* 213: 129.
24. Yada, B., G. Brown-Guedira, A. Alajo, G.N. Ssemakula, E. Owusu-Mensah, E.E. Carey, R.O.M. Mwanga, G.C. Yencho. 2017. Genetic analysis and association of simple sequence repeat markers with storage root yield, dry matter, starch and  $\beta$ -carotene content in sweetpotato. *Breeding Science*. doi:10.1270/jsbbs.16089.
25. Yada, B., A. Alajo, G.N. Ssemakula, R.O.M. Mwanga, G. Brown-Guedira, G.C. Yencho. 2017. Selection of simple sequence repeat markers associated with inheritance of sweetpotato virus disease resistance in sweetpotato. *Crop Science*, 57(3): 1421-1430.
26. Adedipe, O.E., S.D. Johanningsmeier, V-D. Truong, and G. C. Yencho. 2016. Development and validation of a near-infrared spectroscopy method for the prediction of acrylamide content in french-fried potato. *J. Agric. Food Chem.* 64:1850–1860.
27. Mwanga, R.O.M., G. Kyalo, G.N. Ssemakula, C. Niringiyr, B. Yada, M.A. Otema, J.Namakula, B. Kigozi, R. N.M. Makumbi, A-M. Ball, W.J. Grüneberg, J.W. Low, G.C. Yencho. 2016. ‘NASPOT 12 O’ and ‘NASPOT 13 O’ sweetpotato. *HortScience*. 51:291-295.
28. Schultheis, J.R. N.A. George, K.V. Pecota, W.B. Thompson, and C. Yencho. 2016. Potential yields of industrial sweetpotatoes using cut seed pieces planted at various dates. *Acta Horticulturae*. 1118. 79-88. 10.17660/ActaHortic.2016.1118.12.
29. Ceballos, H., R.S. Kawuki, V.E. Gracen, G.C. Yencho, and C.H. Hershey. 2015. Conventional breeding, marker-assisted selection, genomic selection and inbreeding in clonally propagated crops: a case study for cassava. *Theor. Appl. Gen.* 171: 1647-1667.
30. George, N.A., K.V. Pecota, G.C. Yencho. 2015. The carbohydrate yield of sweetpotato (*Ipomoea batatas*) grown from slips and root pieces in North Carolina. *HortScience*, 50(11): 1610-1617.
31. Haynes, K. C. Yencho, M. Clough, M. Henninger, X. Qu, B. Christ, M. Peck, G. Porter, C. Hutchinson, D. Gergela, D. Halseth, S. Menasha, and J. Sieczka. 2015. Peter Wilcox: a new purple-skin, yellow-flesh fresh market potato cultivar with moderate resistance to powdery scab. *American Journal of Potato Research*. 92. 10.1007/s12230-015-9470-8.
32. Khoury, C.K., B. Heider, N.P. Castañeda-Álvarez, H.A. Achicanoy, C.C. Sosa, R.E. Miller, R.W. Scotland, J.R.I. Wood, G. Rossel, L.A. Eserman, R.L. Jarret, G.C. Yencho, V. Bernau, H. Juarez, S. Sotelo, S. Haan and P.C. Struik 2015. Distributions, ex situ conservation priorities, and genetic resource potential of crop wild relatives of sweetpotato [*Ipomoea batatas* (L.) Lam., I. series Batatas]. *Front. Plant Sci.* doi: 10.3389/fpls.2015.00251.
33. Kivuva, B.M., S.M. Githiri, G.C. Yencho, J. Sibiyi. 2015. Screening sweetpotato genotypes for tolerance to drought stress. *Field Crops Research*. 171: 11-22.

34. Musembi, K.M., S.M. Githiri, J., G.C. Yencho. 2015. Combining ability and heterosis for yield and drought tolerance traits under managed drought stress in sweetpotato. *Euphytica*. 201(3): 423-440.
35. Todd, S.M., V.D. Truong, K.V. Pecota, G.C. Yencho. 2015. Combining ability of sweetpotato germplasm for yield, dry matter content, and anthocyanin production. *J. Amer. Soc. Hort. Sci.* 140:1-8.
36. Yada, B., G. Brown-Guedira, A. Alajo, G.N. Ssemakula, R.O.M. Mwanga, G.C. Yencho. 2015. Simple sequence repeat marker analysis of genetic diversity among progeny of a biparental mapping population of sweetpotato. *HortScience*. 50:1143-1147.

### **Book Chapters (since 2015)**

1. Mwanga, ROM, M.I. Andrade, E.E. Carey, J.W. Low, G.C. Yencho and W.J. Grüneberg. 2017. Sweetpotato. In: Campos, H. and Peter D. S. Caligari. 2017. Genetic improvement of tropical crops. Springer, Switzerland. 346 pp.
2. Truong, V.D. & Avula, R. & Pecota, K. & Yencho, Craig. 2018. Sweetpotato Production, Processing, and Nutritional Quality. In: Handbook of Vegetables and Vegetable Processing, Second Edition, M. Siddiq and M.A. Uebersax (eds). John Wiley & Sons Ltd., 10.1002/9781119098935.ch35.
3. Grüneberg WJ, Ma D, Mwanga, ROM, Carey EE, Huamani K, Diaz F, Eyzaguirre R, Guaf E, Jusuf M, Karuniawan A, Tjintokohadi K, Song Y-S, Anil SR, Hossain M, Rahaman, E, Attaluri SI, Somé K, Afuape SO, Adofo K, Lukonge E, Karanja L, Ndirigwe J, Ssemakula G, Agili S, Randrianaivoarivony JM, Chiona M, Chipungu F, Laurie SM, Ricardo J, Andrade M, Fernandes FR, Mello AS, Khan MA, Labonte DR and Yencho GC. 2015. Advances in Sweetpotato Breeding from 1992 to 2012. pp 3-68. In: Low J, Nyongesa M, Quinn S, Parker M (eds.) Potato and Sweetpotato in Africa: Transforming the Value Chains for Food and Nutrition Security (eds J. CAB International, UK 662 pp.

### **Plant Varieties and Plant Patents**

1. Have participated in the development and release of 45 sweetpotato and potato varieties
2. Co-recipient of over 55 US and international plant patents.