

NC-140 2013/2014 annual report

Fund Leveraging, specifically, collaborative grants between stations and members.

NC-140 members have written research proposals and attracted extramural funding associated or directly related to the five objectives of this project from local, regional, national and international funding sources. For fiscal year 2013/2014, funding reported by members amounted to several million dollars from primarily commodity groups and state sources. Additionally, funding from competitive grants associated with this project were more than several million dollars.

Black, B.L. (2014-2017). A Comparison of Water Relations and Water Use Efficiency Among Fruit Tree Rootstocks. Utah Dept. of Agriculture & Food, Specialty Crop Block Grant. \$31,029.

Black B.L. (2014-2015). A Comparison of Water Relations Among Fruit Tree Rootstocks, Utah Ag. Experiment Station competitive grant. \$17,946.

Cline, J. and J. Zandstra. 2014. Canadian Horticultural Council. ~\$30,000

Cline, J. and K. Carter. 2013. Niagara Peninsula Fruit and Vegetable Growers. \$6500

Carter, K. and J. Cline, 2014. Adaption Council – Farm Innovation Project. \$

Cochran, D.R., J. Hannan, and G. Nonnecke. 2013. Optimizing the Cropping Potential and Profitability of Organic and Sustainable Apple Orchards Through the Use of Dwarfing Rootstocks. Iowa Dept. of Agri. and Land Stewardship Specialty Crop Block Grant. (\$11,000 for 30 months; plus \$1,700 in-kind for land and equipment usage)

Cowgill, W.P., Jr., 2014. NJ Horticultural Society, NC-140 Rootstock Research. 4,500

Cowgill, W.P., J., 2014- Ag Industry Support- dollars and in kind total 18,000

2014 Volunteer Hours –Master Gardner Snyder Fruit Team-725 hours @\$24.00 17,400

Crassweller, R.D. and M. Basedow. 2014. Comparison of Apple Graft Union Incompatibility Using Laser Ablation Tomography from International Fruit Tree Association. \$5,000.

Crassweller, R.D. 2014. Apple Rootstock and Cultivar Evaluation The State Horticultural Society of Pennsylvania Research Committee. \$11,644

Crassweller, R.D. 2014. Second Generation Apple Systems Trials. The State Horticultural Society of Pennsylvania Endowment Committee.- \$9,000

Crassweller, R.D. 2014. Nutritional Analysis of New Apple Cultivars in High Density Plantings The State Horticultural Society of Pennsylvania Extension Committee . \$1,494

Crassweller, R.D. 2014. Extending Cornell Carbohydrate Model to Pennsylvania Growers for Determining Apple Tree Response to Chemical Thinners. The State Horticultural Society of Pennsylvania Extension Committee. \$4,300

R. Elkins. 2014. Rootstocks and orchard systems for European pears. California Pear Advisory Board, \$17,251 (additional in-kind support from cooperating growers).

Einhorn, T. 2014. Competitive grant awards totaling \$394,809 with \$238,653 going to his research program and all of it coming from Commodity groups.

Fallahi, E., received a block Grant for \$ 49,500 for 2013-2014 for evaluation of leaf minerals and fruit quality attributes on different rootstocks and canopy designs from Specialty Crop Block Grant, Idaho State Department of Agriculture.

Fallahi, E. received a block Grant for \$ 53,500 for 2014-2016 for evaluation of yield, growth and fruit quality attributes and leaf minerals of Aztec Fuji on different rootstocks from Specialty Crop Block Grant, Idaho State Department of Agriculture.

Fallahi, E. received \$3000 worth of chemicals from Wilbur Ellis Company for pest and disease control of rootstock projects.

Fallahi, E. received approximately \$4800 in labor and equipment (in-kind) from Idaho fruit industry for operation of various apple rootstock projects.

Forge, T, Neilson, D, Blatt, S, Burgher-MacLellan, K, Forney, C, Kalmokoff, M and Song, J. Developing more resilient tree fruit production systems from the ground up: Rootstocks with enhanced tolerance to emerging biotic threats to orchard health. Science and Technology Branch, Research, Development and Technology Transfer Proposal. Amount applied for \$800,000 over 3 years.

Hampson, C. R. 2014. Apple rootstock evaluation in British Columbia conditions. Costs of supporting the 2010 NC-140 apple rootstock trial and one independent rootstock trial were covered by Agriculture and Agri-Food Canada's Growing Forward 2 program, AIP-P020 Canadian Tree Fruit Products Development. Jointly funded by AAFC and the BC Fruit Growers' Association. Approx. \$2000 in 2014.

Hirst, P.M., J. Park, A. Kak, J.R. Schupp, T. Baugher, L. Glenna, A. Patel, J. Harper, J. Tarara, H. Koselka, and B. Wallach. 2012. Autonomous pruning of specialty crops. USDA-SCRI. 2012-2016. \$6,056,297.

Kon, T. M. and J. Schupp. Investigating Forced Heated Air Treatments as a Blossom Thinning Strategy of Apple. State Hort. Assoc. PA. 2014. \$7,437.

Lang, G.A. 2012-2014. Stone Fruit Sustainability in High Tunnels. USDA-AFRI Small Farms. \$100,673 (T.L. Robinson, P.I., \$499,977 total)

Lang, G.A. 2014. Apple Rootstock Evaluations. Michigan Apple Committee. \$17,030.

Lang, G.A. 2014. Sweet Cherry Orchard Designs. Michigan Cherry Committee. \$4,000.

Lang, G.A. 2014. Trellised Protected Orchard Systems. International Fruit Tree Association. \$8,000.

Lang, G.A. 2014. NC140 Trial Coordination – Cherry. International Fruit Tree Association. \$1,500 (W. Autio, P.I., \$12,000 total).

Lang, G.A. 2014. Fruiting Wall and High Tunnel Stone Fruit Production. Michigan State Horticultural Society. \$7,404.

Lang, G.A. 2014-2015. Propagation of MSU Cherry Rootstocks for Research Trials. Project

GREEN. \$14,092 (A. Iezzoni, P.I., \$30,240 total).

Lang, G. 2014. Rasch Orchards, Sparta, MI; \$2,500 in-kind land use and maintenance for apple rootstock trial.

Lavelly, E. and R. Marini. 2014. Stored Carbohydrates as a Factor in Thinning Efficacy Based on the Carbon Balance Model". The State Horticultural Society of Pennsylvania Research Committee. \$10,053.

Liu, J., J. Schupp, T. Baugher, J. Michael, and P. Heinemann. 2014. Development and Commercialization of a Low-cost Fruit Harvest Assist Device. Penn State College of Agric. Sci. Research Applications for INnovation (RAIN) Grants Program. \$65,772.

Marini, R. 2014. NC-140 Rootstock research trial Coordination. International Fruit Tree Association. \$1,500.

Miller, D. 2014. In support of NC140 apple rootstock plantings. \$5,000. Ohio Apple Marketing Program.

Moran, R., G. Fazio and J. Cline. 2014. Identifying Cold Hardy and Tender Apple Rootstocks. International Fruit Tree Association, \$2500.

Moran, R. and G. Koller. 2013. Tall Spindle Systems Trial. New England Tree Fruit Research Committee, \$1702.

Moran, R. In-kind matching funds Orchard maintenance by Circle B Farms, Caribou, Maine, 1 acre @ \$5000.

Musacchi, S. (2013) WA 38 rootstock and systems trial. Washington Tree Fruit Research Commission (WTFRC) Role: PI Stefano Musacchi, Kate Evans and Karen Lewis Budget: \$58,594.

Musacchi, S. (2014-2017) WA 38 Rootstock and Systems Trial. Washington Tree Fruit Research Commission (WTFRC) Role: PI Stefano Musacchi. Co-PI: Karen Lewis, Karina Gallardo, Tom Auvil. Total Budget: \$242,519: personal budget: \$133,495.

Neilsen, D. 2014. Cherry rootstock and training system evaluation in British Columbia conditions. Costs of supporting the 2010 NC-140 cherry rootstock trial covered by Agriculture and Agri-Food Canada's A-base project 1165 'Optimizing soil and water management of high value horticultural crops in a changing environment' and by Agriculture and Agri-Food Canada's Growing Forward 2 program, AIP-P020 Canadian Tree Fruit Products Development. Jointly funded by AAFC and the BC Fruit Growers' Association. Approx. \$3000 in 2014.

Parker, M.L. 2013-2014. Developing Management Strategies for Tree Fruit. NCDA&CS Specialty Crop Block Grant. \$84,000.

Parker, M.L. 2014. NC Apple Growers Association. \$6,780.

Parker, M.L. NC Legislature/Special Bill funding for apple research - \$6,120.

Peck, G.M. and M. Williams. 2014-2017. Towards ecologically-based fertilizer recommendations that improve soil quality in high-density apple orchards. USDA-NIFA, Southern Sustainable Agriculture Research and Extension Program (SSARE). \$140,000.

Peck, G.M. and K.S. Yoder. 2014-2016. Advancing Organic Apple Production in Virginia. Virginia Department of Agriculture and Consumer Services-Specialty Crop Block Grant. \$38,166.

Peck, G.M. 2014-2015. Fine-tuning fertilizer recommendations for young apple trees in high-density plantings. Virginia Apple Research Program. \$10,000.

Peck, G.M. 2014-2015. Continued Investigations into New Rootstocks, Cultivars, and Training Systems for Virginia. Virginia Apple Research Program. Virginia Apple Research Program. \$5,000.

Peck, G.M. 2014-2015. 2014 NC-140 rootstock trial for Central Virginia. Virginia Apple Research Program. \$6,265.

Perry, R.L. 2014. Over-The-Row harvesting of tart cherries. Michigan Cherry Producers. \$6000

Reighard, G. NC-140 trial coordinator grant. International Fruit Tree Association. \$2,000.

Reighard, G. Guardian® seed sales. South Carolina Foundation Seed. \$178,750.

Reighard, G. Research plot maintenance. South Carolina Peach Council. \$3,900.

Schupp, J. 2014. Labor Efficient Apple and Peach Production Systems. State Hort. Assoc. PA. 2014. \$8,839.

Schupp, J. R., T. A. Baugher and A. Tabb. 2014. Improving the quality of Pennsylvania apples with precision pruning. Pennsylvania Dept. of Ag. 2014. \$40,000.

Schupp, J. R., P. Heinemann, T. A. Baugher. 2014. Labor Efficient Apple and Peach Systems for Profitability. Pennsylvania Department of Agriculture. \$49,968.

Yao, S. Organic apple high density planting in New Mexico, USDA Specialty Crop Block Grant through NMDA. \$27,600 (Nov 2014 to Sept 2017).

Stasiak, M. UW-EXT Fruit Team funding for establishment cost of 2014 Apple Rootstock Planting. \$5,000.

Stasiak, M. Door & Kewaunee Co. commercial fruit research and outreach support to cover Ag Res Station land charge for both 2010 and 2014 Apple Rootstock Plantings. \$1,100.

Warmund, M.R. 2014. Tree fruit research supporting NC-140 rootstock research. Peters family gift \$4,700.

Warmund, M.R. 2014. Apple research supporting NC-140 research. MO Apple Merchandising Committee \$2,000.

Wolfe, D. 2014. Fence to controlling deer in the orchard? Gardens Alive. \$3000. Kentucky Agricultural-Development Board/Kentucky Horticulture Council. \$2600.

Wolfe, D. 2013. New peach/nectarine cultivar planting. Cumberland Valley Nursery. \$1000.

Wolfe, D. 2013. Will Hybrid Muscadine grapes survive Kentucky winters? Gardens Alive. \$200.

Wolfe, D. 2013. Blackberry cultivar trial. Kentucky Agricultural-Development Board/Kentucky Horticulture Council. \$1000.

Wolfe, D. 2009. Apricot, peach, nectarine cultivar planting. Gardens Alive. \$15,000.

Wolfe, D. 2013-2014. Technical Staffing from Kentucky Agricultural Development Board / Kentucky Horticulture Council grant #6. Infrastructure for Kentucky Horticulture. D. Ingram – PI / Project Manager. Co-PIs – T. Coolong, W. Dunwell, J. Strang and T. Woods. 2013- 2014. \$1,110,000 (\$560,000 for 2013 and \$550,000 for 2014).

Yoder, K.S. and G.M. Peck. 2014-2015. Apple rootstock susceptibility to Tomato Ring Spot Virus (TmRSV). Virginia Apple Research Program. \$8,000.

Yoder, K.S. and G.M. Peck. 2014-2016. Susceptibility of new apple rootstocks to Tomato Ringspot Virus (TmRSV). Virginia Agricultural Council. \$7,500.

Other (Team)

A USDA SCRI grant was obtained (\$495,000 from Sept 2011 through August 2014) entitled: Development of an eXtension Community of Practice (CoP) – Rootstocks and Apple Varieties for the Eastern States (RAVES) involving the states of MN, PA, MA, NY, NC, MO, OH, WV, IN, VA. We completed the grant objectives with the grant ending at the end of August 2014.