Welcome!

This is the inaugural issue of the NCPN *Network News*, a newsletter delivered via email to the public and stakeholders of the National Clean Plant Network (NCPN). We are very excited about connecting with you to share information, success stories, resources, and concerns about how the NCPN can sustain healthy, profitable, and productive specialty crops.

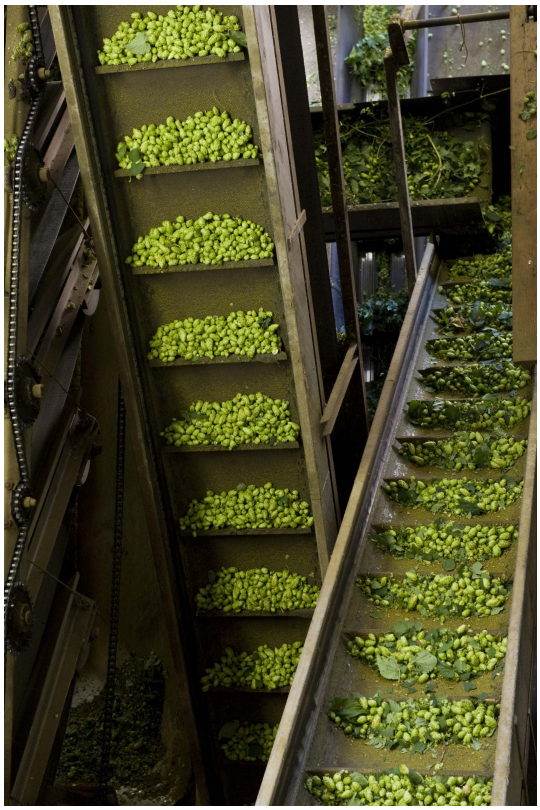
This first edition provides an overview of the seven specialty crop groups which currently comprise the National Clean Plant Network. The articles include links which will take you to websites managed by these crop groups and additional resources available on other industry-related sites. Future editions will provide a more in-depth look at the centers across the United States that support these crops and work collaboratively to reduce viruses and virus-like agents that cause economic harm to U.S. agriculture.

Across the Network

On February 11, 2016, Tom Vilsack, the U.S. Department of Agriculture Secretary, announced that USDA's Animal and Plant Health Inspection Service (APHIS) has allocated $58.25 million from Section 10007 of the 2014 Farm Bill to support fiscal year 2016 Plant Pest and Disease Management and Disaster Prevention Programs. Included in this allocation is $5 million to support the National Clean Plant Network (NCPN), providing funding to 22 projects in 17 states that focus on providing high quality propagative plant material free of targeted pathogens. This newsletter is one of the venues we intend to use to keep stakeholders up-to-date on the progress of these projects and the accomplishments of the centers that comprise the network.

The network actively communicates via a series of meetings and teleconferences, in which we collectively address critical issues, share best-management practices, and collaborate on processes to advance the clean plant mission. This newsletter is being added to our "communication tool box" to keep stakeholders involved and informed on topics that range in scope from local interest to crosscutting impact.

We are also developing ***A Look Ahead*** at events of specific interest to the crops in the network. In January of this year, Mr. Erich Rudyj and Dr. David Prokrym had the opportunity to attend one such event-- the American Hop Convention, an annual gathering of hop growers, brokers, and brewers, held this year in Palm Desert California. This was an excellent opportunity to learn how NCPN funding is benefitting thehop industry and how valued the program is to growers all across the country. This convention is now in its 60th year, and new this year was a Small Grower Track, with overflow attendance at a session on access to clean planting stock. With this evidence of overwhelming interest in virus-tested hop material, it seems appropriate to feature hops in this inaugural edition of the NCPN News. In future editions, we look forward to sharing more about each of the specialty crops in the network, as well as the centers that support the clean plant mission.



Spotlight on Hops

As the demand for craft beer continues to grow across the U.S. and beyond, the demand for one key ingredient grows as well: U.S.-grown hops. In a presentation from the Brewer's Association at the Annual American Hop Convention in January 2016, it was noted that the popularity of IPA-styled beers (IPA) continues to drive an increase in hop consumption in the U.S. Statistics show that hop usage doubled in volume between 2011 and 2015.

In the U.S., the growth of the hop industry has occurred beyond the traditional production area of the Pacific Northwest (PNW), with new growers establishing hop yards across the country. Hop acreage will continue to expand to meet the increasing demand for hops, both within the PNW and in these new hop-growing areas across the country.

These trends are also reflected in the requests for virus-tested hop propagative material from the National Clean Plant Network for Hops. At the Clean Plant Center Northwest (CPCNW) in Prosser, Washington, sales of clean planting stock have increased steadily in both quantity and reach. When CPCNW was officially designated as the NCPN-Hop center in 2010, 209 propagative units were distributed to customers in 5 states. By 2015, total distribution had reached 4,185 units across 20 states. Debbie Woodbury, coordinator for NCPN-Hops, reports a keen interest among hop growers in starting new operations with clean material. "Some of our largest legacy growers have committed to only planting with material that has been virus indexed. At the other end of the spectrum, we get calls every week from prospective new growers from the Midwest and eastern states, wanting to know how to get clean material for their planned hop yards. There is a tremendous awareness, even among startups, of the negative impact of Hop stunt viroid and other harmful pathogens." This is good news for growers at all levels, since heightened diligence reduces the incidence of diseases being vectored between hop yards.

The National Clean Plant Network for Grapes (NCPN-G) was established to improve the health and productivity of wine, juice, and table grape vineyards in the United States. Clean grapevines are the key to higher yields, higher quality fruit, and cost-effective, sustainable grape production. The five centers in the network represent grape growing regions across the country.

In March 2016, a weekly webinar series entitled *NCPN Webinar Series: Clean Plants for the Future of the Eastern Wine and Grape Industry* was hosted by Dr. Tim Martinson, Senior Extension Associate for Cornell University's Viticulture and Enology program. The subject was how the efforts of the National Clean Plant Network, new testing protocols, and a revitalized New York certification program will reduce the risk of nursery-transmitted viral pathogens. The series featured different speakers each week and was attended by people from across the U.S. as well as internationally. Presentations are posted at https://grapesandwine.cals.cornell.edu/extension/ncpn-webinar-series-clean-plants-future

Maher Al Rwahnih wins award from the American Phytopathological Society

Maher Al Rwahnih, a project scientist with Foundation Plant Services, has won the Lee M. Hutchins Award from the American Phytopathological Society. The award is given to the author of published research on the diseases of perennial fruit plants. Maher is actively involved in the fruit tree, grape, and rose programs at FPS.

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The National Clean Plant Network for Fruit Trees (NCPN-FT) assists in the production of temperate climate fruit and nut trees which are free of targeted plant pathogens and pests that cause economic harm.

NCPN-FT Tier 2 hosted by Southeast Budwood Program at Clemson University

The NCPN-FT Governing Body (Tier 2) met face-to-face in Clemson, South Carolina on November 4-5, 2015. Hosted by Dr. Simon Scott, the Southeast Budwood Program Director at Clemson University, the group discussed current trends in the use of high-throughput sequencing, and challenges in establishing priorities for retaining virus-tested G1 collections. The group also toured state-of-the-art fruit packing facilities at Titan Farms and met with members of the Peach Council.

NCPN-FT-affiliated publications on fruit tree viruses: Villamor, D., Mekuria, T, Pillai, S.S., and Eastwell, K. 2016. High throughput sequencing identifies novel viruses in nectarine: Insights to the etiology of stem pitting disease. *Phytopathology*

The National Clean Plant Network for Citrus (NCPN- C) is a body of researchers, extension specialists, state regulatory personnel and industry stakeholders from California, Florida, Texas, Arizona, Alabama, Louisiana, Hawaii, Maryland and Puerto Rico.

Huanglongbing Disease

On a global scale, one of the most important issues within citrus is the disease known as Huanglongbing (HLB), caused by several species of bacteria (Candidatus Liberibacter spp.) and vectored by phyllids, primarily the Asian citrus psyllid (ACP) (Diaphorina citri). In the U.S.A., the disease has devastated citrus production in Florida and is now threatening other citrus growing regions within the network. In April of this year, NCPN-C chair Georgios Vidalakis provided an update on the HLB situation at the 20th International Organization of Citrus Virologists Conference in Chongqing, China. The vector was first discovered in San Diego, CA in 2008 and has spread as far North as San Mateo County. This resulted in wide spread ACP quarantine efforts and ACP 'task forces' to implement control measures in California. The first HLB positive tree was identified in the Los Angeles area of Hacienda Heights in 2012. The second HLB positive tree was not found until 2015 approximately 15 miles northwest of the first positive tree; now 12 additional trees have been identified within this same area. All trees have been removed and destroyed. Collaborative efforts continue in research and ACP/HLB testing within industry, state, and federal entities to combat this threat.

Recent NCPN-affiliated publications on citrus crop viruses:

da Graça, J., Douhan, G., Halbert, S., Keremane, M., Lee, R., Vidalakis, G., Zhao, H. 2016. Huanglongbing: An overview of a complex pathosystem ravaging the world's citrus. *IJPB* 58:373-387

Harmonization of Blueberry and Rubus Certification Guidelines

The NCPN-Berries group is working with various State Departments of Agriculture to implement pilot projects on the Harmonization of Blueberry and Rubus certification. These efforts are being supported through the Farm Bill section 10007 on Protecting American Agriculture. Pilot projects are underway for blueberry in Michigan, Oregon and Washington.

Virfind Bioinformatics Pipeline

Virfind is a custom-made bioinformatics pipeline able to detect all known viruses and most importantly identify new ones. The pipeline, funded by NCPN, is publicly available since 2014 and is being used by hundreds of users on all continents. In recent months it has expanded its user base to include human, animal and marine virology. For more information please visit the Virfind website.

Recent NCPN-affiliated publications on berry crop viruses:

Thekke-Veetil, T. and Tzanetakis, I.E. 2016. First report of strawberry polerovirus-1 in strawberry in the United States. *Plant Disease*

Thien Ho, T., Quito-Avila, D., Keller, K.E., Postman, J.D., Martin, R.R. and Tzanetakis, I.E. 2016. Evidence of sympatric speciation of elderberry carlaviruses. *Virus Research* 215: 72-75. doi.10.1016/j.virusres.2016.01.017

Lanning, K.K., Moore, P.P. and Martin, R.R. 2015. First report of a resistance-breaking strain of *Raspberry bushy dwarf virus* in red raspberry (*Rubus idaeus*) in North America. *Plant Disease*.

As a result of the 2015 Cooperative Agreement Program, USDA-APHIS designated funds for the start-up of the National Clean Plant Network for Sweetpotatoes (NCPN-SP). This annual grant process is made possible by the Farm Bill, which currently budgets $5M to be shared among the seven current specialty crops. The inaugural meeting of the Tier 2 Governing Body was held in Winnsboro, LA in conjunction with an LSU AgCenter field day in August 2015. NCPN-SP held a workshop hosted by Dr. Jorge Abad and staff of the USDA-APHIS Plant Germplasm Quarantine Program in Beltsville, Maryland in September 2015. Representatives from each of six sweetpotato centers as well as from USDA labs were able to see cutting-edge facilities and programs for virus detection and elimination for sweetpotato. The group developed the first target list of viruses for sweet potato and agreed on protocols for indexing for these viruses that will be followed in each center. For more information contact Dianne Coats at dianne_coats@ncsu.edu.

Rose is the newest specialty crop, and the first ornamental, to join the National Clean Plant Network. Launched in 2015, National Clean Plant Network for Roses (NCPN-R) held its organizational meeting in April of 2015, establishing a 16-person advisory board with representatives from the growing industry, the public garden sector, and university-based research and extension faculties.

The advisory board met again in June 2016 to determine a list of targeted pathogens and to establish protocols for combating viruses that have negative impact on the rose industry. It is anticipated that Rose mosaic virus will be among the top priorities for elimination from rose nursery stock. Foundation Plant Services at University of California, Davis is currently conducting virus testing and elimination for roses. To read more about the rose clean-up process, see the article by Dr. David Zlesak in the May 2015 issue of *The American Nurseryman.*

“The best way to ensure positive impact is for rose industry members to take advantage of the NCPN-R resources and use clean stock for propagation,” states Dr. David Zlesak, rose breeder and Associate Professor of Horticulture, University of Wisconsin-River Falls.

A Look Ahead: Upcoming Events

- **August 18, 2016** *American Cranberry Growers Assoc. Summer Meeting*, Chatsworth, NJ
- **December 2016** *Washington Tree Fruit Association Annual Meeting* (TBD)
- **January 17-20, 2017** *61st Annual American Hop Convention*, Bend, OR
- **January 24-26, 2017** *Unified Wine and Grape Symposium*, Sacramento, CA

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