Economic Studies Reinforce Efforts to Safeguard Specialty Crops in the United States

NCPN-Economic Studies Special Initiative

• NCPN stakeholders, economists, center directors, and program managers convened to discuss the status of existing economic research on clean plants and to decide on the future direction of economic studies.

• This publication is one of the outcomes of the special initiative.

• It reviews recent research outlining economic impacts of diseases of vegetatively-propagated specialty crops and the return on public investment in NCPN centers.
Economic Studies

- Document the economic impacts of diseases caused by graft-transmissible pathogens
- Identify profit-maximizing disease management solutions in the field
- Assess returns to public investment of NCPN centers
Graft-transmissible diseases

- Pathogens: viruses, viroids, bacteria and phytoplasmas
- If infected plant stock is propagated, progeny will be infected
- There is no cure
- Economic studies show graft-transmissible diseases of specialty crops are costly
Citrus: Huanglongbing (HLB/Citrus Greening)

- Florida - Cost $9 billion from 2006-2016
  - 40% reduction in citrus acreage, 57% decrease in citrus operations, 34% reduction in juice processors, loss of 8,000 jobs

- California - $40 million/yr to eradicate and suppress HLB and its vector

- USDA - invested $400 million for HLB suppression in 8 years
Grapevine Diseases

- Leafroll disease causes losses from $25,000 to over $226,000/hectare over a 25-year lifespan of a vineyard in CA
- Grapevine red blotch disease causes losses from $2,200/hectare in WA to $69,500/hectare in CA over a 25-year lifespan of a vineyard
- Grapevine leafroll-associated virus-3 losses estimated at $90 million/year in CA
- Pierce’s disease causes losses estimated at $92 million/year in CA
Fruit Tree Diseases

• Plum pox virus in PA
  • Eradication program in PA cost $59 million from 1999-2009
  • 810 hectares of orchards and over 2,500 trees destroyed

• Little cherry disease and X-disease in Pacific NW
  • Estimated 12% reduction of cherry production in 2020
  • Losses of 400 hectares of sweet cherry and 300 hectares of stone fruit trees
Benefits of Clean Plant Center Programs: Clean Plant Center Northwest

- Total gross annual benefit to fruit tree growers and nurseries ~$81 million annually or 150 times the cost of establishing and operating the center
- Estimated returns of $2.6 billion over 20 years to apple, cherry, pear, and peach growers in the Pacific Northwest of the United States
Benefits of Clean Plant Center Programs: Foundation Plant Services

• Grower costs and benefits of testing for GLRaV-3 at FPS exceeded $20 million annually for the North Coast of CA; economic returns outweighing costs 10-fold

• The same program has a benefit of $70 million for the rest of the grape growing regions for a statewide benefit of $90 million annually

• Estimated return to investment in FPS based on leafroll ranges from 19:1 to 99:1
Economic Studies

• Incentivize adoption of clean planting material from clean disease-tested stocks

• Demonstrate the economic benefits for NCPN centers

• Provide disease management options that minimize the negative impacts of graft-transmissible pathogens on grower profits

• Contribute to an integrated disease management approach rooted in disease ecology and based on profit-maximizing solutions that resonate with growers
Future Economic Research

“Additional economic studies could further reinforce efforts to produce, maintain, and distribute pathogen-tested propagation material, and to enhance the adoption of clean planting material….to ensure the competitiveness of the United States specialty crop industries in the global market.”