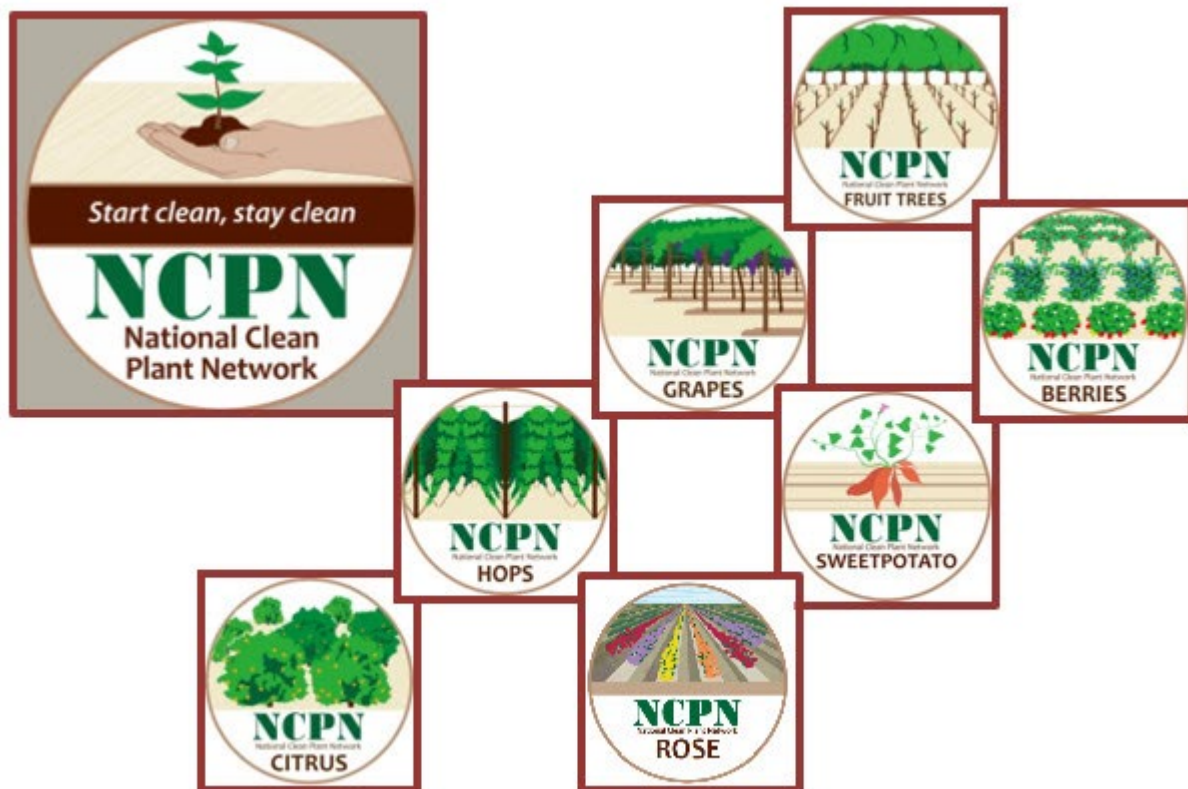




National Clean Plant Network

2021-2025 Strategic Plan and Program Implementation Guide



Healthy Agriculture through Clean Plants

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Document Control Information:

This document will always be a work in process, influenced by the changing needs of industry, scientific advances, and regulatory requirements. A record of all revisions is maintained on the Revision History page at the end of this document.

Welcome to the National Clean Plant Network (NCPN) Strategic Plan and Program Implementation Guide

This document serves as a guide and resource for Network leaders, managers and members. Specifically, it: 1) highlights the primary goals and objectives, 2) outlines activities to accomplish the stated mission, and 3) provides the framework to create a path forward for the next five to ten years and 4) guides all levels of Network membership in planning and/or implementing operations. With this approach in mind, the document should serve as a template for organizing and prioritizing Network and commodity governance activities, while ensuring Network activities align with the defined strategic goals and objectives.

The National Network managers identified and enlisted a group of representatives from each of the seven Network commodity governance bodies (i.e., berries, citrus, fruit trees, grapes, hops, roses and sweet potato). The assembled planning team also included a representative from industry to provide input from the industry perspective at a national level. The composition of the smaller strategic planning team was designed to complement the diversity of the larger Network membership which includes nursery owners, brokers, growers, industry representatives, virologists, plant pathologists, extension agents, laboratory technicians, Center Directors, and principle investigators as well as regulators, managers and officials from the state departments of agriculture and Federal agencies. Simply stated, this plan was built by Network members for Network members.

Network members are united by their shared interest in the production and use of clean plant material. For that purpose, Federal funding promoted the creation of an interconnected network of well-equipped Clean Plant Centers with skilled, dedicated staffs. To continue to accomplish the NCPN mission effectively and efficiently, it is critical that membership is guided and united strategically in planning and implementation processes, to strengthen and advance the Network.

Initially, Network members focused on establishing an interconnected group of laboratories capable of producing clean plant material. Now that the Network is matured with solid membership, its members can further improve and strengthen critical linkages through advanced planning and budgeting, in hopes of positioning the Network to optimally adopt new ideas and technology that will help it adapt, as necessary, to meet the changing business models and needs of our industry and other stakeholders.

To the level that an individual's personal or business plan overlaps with the Network's goals, each member should strive to become involved in planning and implementation of Network goals and objectives. Furthermore, each Network member should see themselves somewhere in this plan whether it is in Network planning and program implementation or, ultimately, in promoting clean plants through the purchase and use of clean propagative plant material.

As part of an ongoing planning process, commodity governing body members and leaders should return to this planning document on a regular basis (at a minimum, annually) to ensure that their efforts remain focused on serving stakeholders' needs while proactively protecting the health and value of American agriculture.

Program Organization and Governance

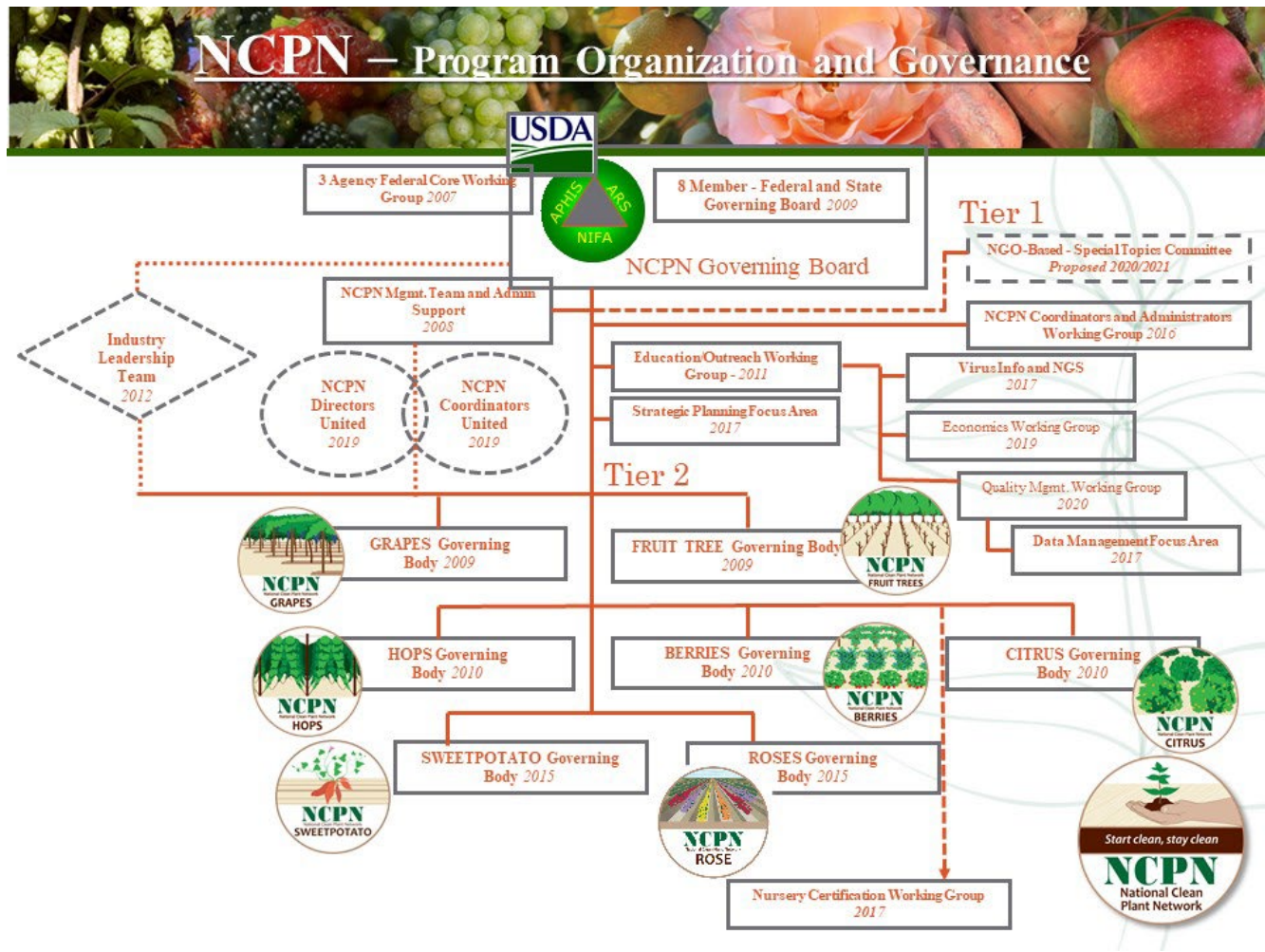


Figure 1. Organization chart depicting the upper-level national management structure (e.g., Governing Board and Network managers), the crosscutting leadership teams (e.g., Education & Outreach, Economics, Quality, Coordinators Team) and the seven grassroots-level, crop-specific commodity groups.

Establishment



The Farm Bill – H.R. 6124 Food, Conservation, and Energy Act of 2008 – became law in June 2008. **Section 10202** directs the United States Department of Agriculture (USDA) Secretary of Agriculture to establish the “National Clean Plant Network” (NCPN), a program under which:

- Partnerships of clean plant centers are organized;
- Centers focus on diagnostic and pathogen elimination services;
- Activities produce clean propagative plant material;
- Centers maintain blocks of pathogen-tested plant materials in sites throughout the United States.

Clean plant material may then be made available to States for certified clean plant programs and to private nurseries and producers.

Mission, Vision, Purpose

In carrying out the NCPN mission, the program:

- Consults with State departments of agriculture, land- grant universities, non-land-grant colleges of agriculture, and industry;
- Uses existing Federal or State facilities to serve as clean plant centers to the extent practicable.

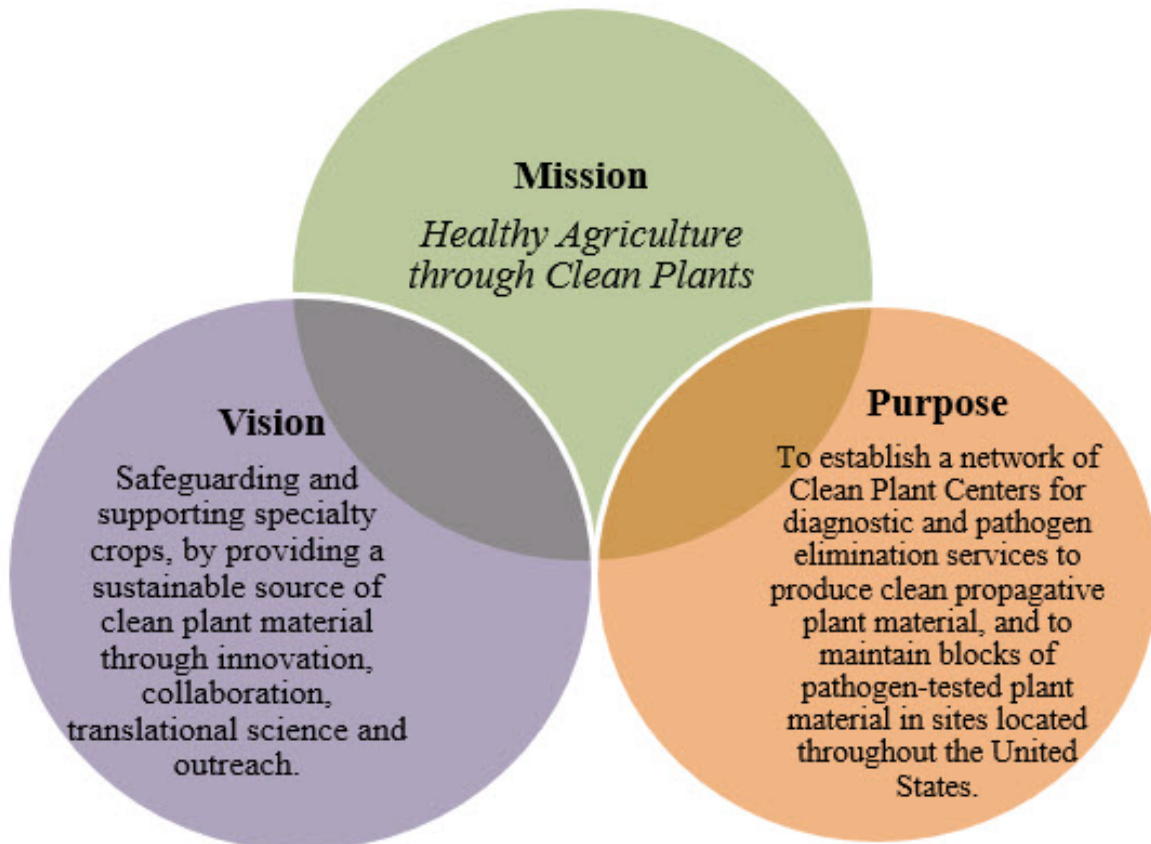


Figure 2. Using accepted planning methods, the planning team generated a simple, focused mission statement and then produced complementary vision and purpose statements.

Background and History

At its core, the Network is a collaborative effort among three USDA agencies:

- Animal and Plant Health Inspection Service (APHIS) for quarantine and regulatory programs
- Agricultural Research Service (ARS) for technology and germplasm issues
- National Institute for Food and Agriculture (NIFA) for outreach and partnership initiatives

As a concept, however, the Network began in November 2006 when a steering committee, with representatives from the nursery industry, the grower community, the National Plant Board and other state regulatory agencies, the land-grant university system, and USDA was formed to review existing clean plant programs, prioritize a list of specialty crops for funding, and propose an NCPN implementation process.

A series of national workshops followed in fiscal year (FY) 2007, 2009, 2010 and 2011, designed to further hone the Network mission, strategic plan, establish program direction, policies, and procedures, and to address critical and emerging program issues.

Basic to NCPN are stakeholder-driven specialty crop governing bodies composed of state, university, and industry partners. By FY 2010, stakeholders representing fruit trees (pomes and stone fruit), grapes, berries (strawberries, blueberries, and cane fruit), citrus, and hops formed NCPN governing bodies entrusted with harmonizing and networking clean plant activities for their crop groups under the NCPN banner.

In FY 2010, NCPN established an Education & Outreach Working Group to develop and deliver extension materials to nurseries and growers.



In FY 2014, the **Agriculture Act 2014** reauthorized NCPN under **Section 10007(e)** and made it permanent. Two additional specialty crops, sweet potato and roses, joined the network in FY 2015, extending coverage to seven specialty crops.

In FY 2018, NCPN established additional special initiatives teams—Economics and Quality Management—as well as groups exploring scientific advances in diagnostics and therapeutics.

The program is currently codified under the **Plant Protection Act Section 7721**.

Since its inception in 2008, the Network Governing Board and national managers have used cooperative agreements to provide over \$60 million in support of 47 initiatives at 34 Clean Plant Centers and locations in 20 States and U.S. Territories. Depending on the crop and location of a Clean Plant Center, economic studies indicate a return on investments in clean plants of between 10x-400x the public's contribution to the program.



Plant Protection Act Sec. 7721

Supported Clean Plant Centers and Locations

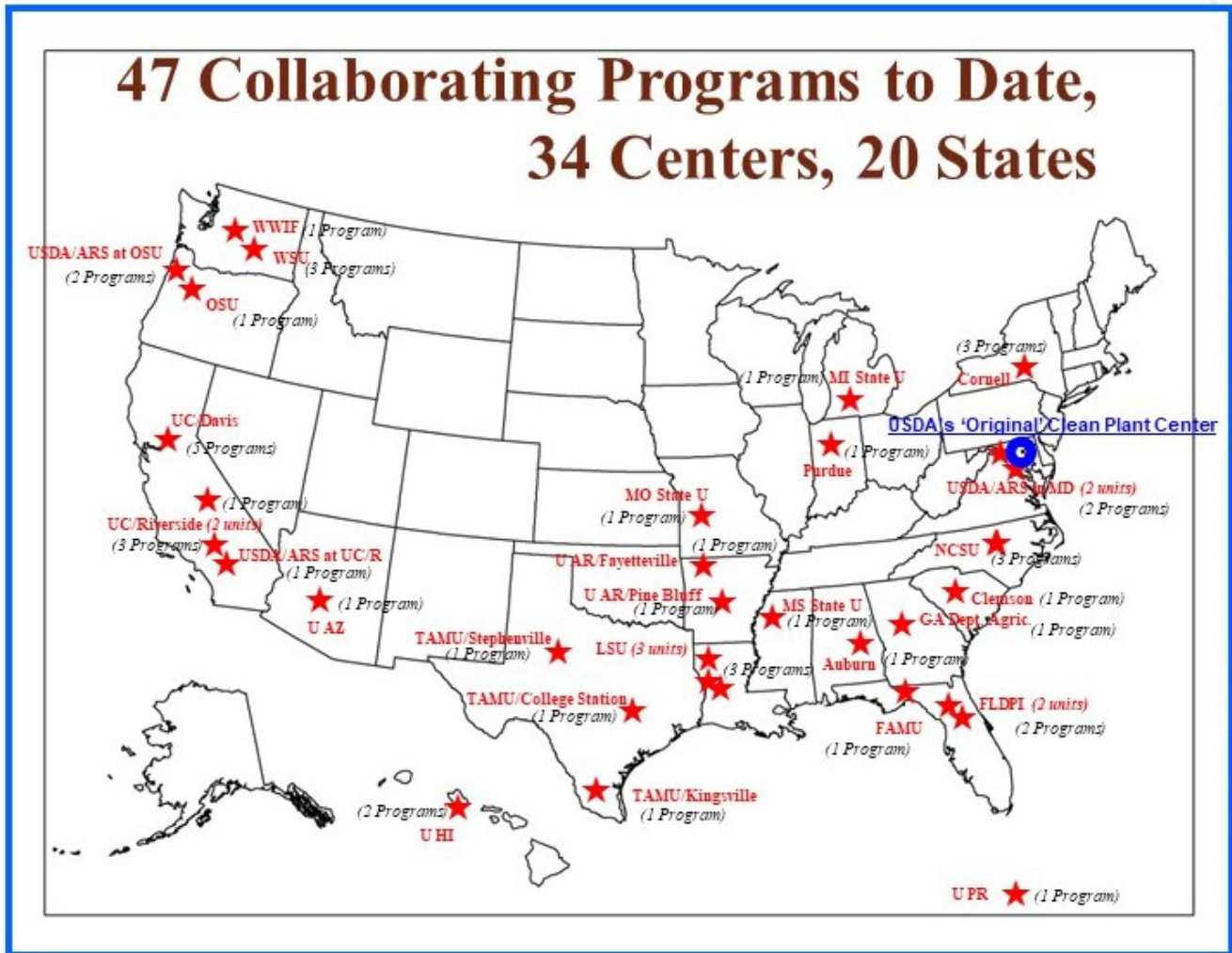


Figure 3. As of 2021, the Network funded 47 collaborating programs with 34 Centers or locations in 20 States and territories.

Grapes

Cooperating Institution	Description
UC Davis (CA)	Full service center* and quality management initiative
Cornell (NY)	Imports, diagnostics, therapy, and economics
WSU at Prosser, WA	Full service center*
Florida A&M University	Full service center for muscadine and southern grapes
MO State University at Mountain Grove, MO	Full service center*
North Carolina State University	Full service center for muscadine and southern grapes

Fruit Trees

Cooperating Institution	Description
UC Davis (CA)	Full service center*
WSU at Prosser, WA	Full service center*
Clemson (SC)	Historical field foundations w/Full service center*

Berries

Cooperating Institution	Description
USDA/ARS at Corvallis, OR incl. OSU	Full service center*
University of AR at Fayetteville, AR	Diagnostics Methods Development / Full service center*
North Carolina State University	Full service center*
UC Davis (CA)	Full service center*

Citrus

Cooperating Institution	Description
UC Riverside (CA) incl. Lindcove Facility	Full svc center* and quality – found. only at Lindcove
FL Div. Plant Ind. Gainesville and Winter Haven	Full service center*
USDA/ARS at Riverside, CA	Full service center*
TX A&M University Kingsville and Stephenville	Full Service center* - foundation only at Stephenville
University of AZ	Foundation block
Auburn University (LA)	Foundation block
Louisiana State U.	Foundation block
UC Davis (CA)	Full service center*
University of HI at Manoa, HI	Full service center*
University of Puerto Rico at Juana Diaz, PR	Foundation block
Georgia Dept. Agric.	Foundation Block - <i>Proposed</i>
USDA/ARS at Beltsville, MD	Citrus Diagnostics index collection

Hops

Cooperating Institution	Description
WSU at Prosser, WA	Full service center*

Sweet Potato

Cooperating Institution	Description
North Carolina State University	Full service center*
Louisiana State U. at Baton Rouge and Chase	Diagnostics/Therapy-Baton Rouge / Foundation-Chase
University of AR at Pine Bluff, AR	Foundation block
University of HI at Manoa, HI	Full service center*
Mississippi State Univ. at Pontotoc, MS	Foundation Block
UC Davis (CA)	Full service center*

Roses

Cooperating Institution	Description
Texas A&M University at College Station, TX	Full service center*
UC Davis (CA)	Full service center*
USDA/ARS at Beltsville, MD	Roses Diagnostics index collection

Table 1. Listing of clean plant programs by specialty crop during 2008-2021

*Full Service Center >>> Imports, diagnostics, therapy, nuclear stock and foundation blocks. NOTE > several Centers such as UC/Davis, WSU, NCSU, and UHI are listed several times since they work on multiple crops; TAMU and LSU also, but at various locations

Cross Commodity Special Initiatives	Leading/Cooperating Institution(s)	Description
Education & Outreach	UC/Davis w/multiple locations in support	NCPN Education & Outreach Program
Communications Planning 1	MI State University <i>(Past)</i>	Dev. comprehensive NCPN comm. plan
Communications Planning 2	WA Wine Industry Foundation w/other support	NCPN Education/Extension/Communications
Lab Information Systems	Purdue Univ. (IN) <i>(Past)</i>	Lab Data needs analysis
Economics	Oregon State U. <i>(Past)</i> Cornell Univ. (NY) <i>(Present)</i>	Economics Program Development
Quality Management	UC Riverside (CA) / Cornell University (NY)	Lab and Foundation Quality Systems/Controls
Virus Information Sharing	USDA/ARS at Corvallis; also w/6 others above	Virus Info Sharing among labs and w/growers

Table 2. Listing of clean plant programs which provide leadership and expertise in special initiatives.

Strategic Goals – An Overview

Goal 1 - Network Operations

Optimize the production, maintenance and distribution of clean plants.

Goal 2 - Advancing Special Initiatives

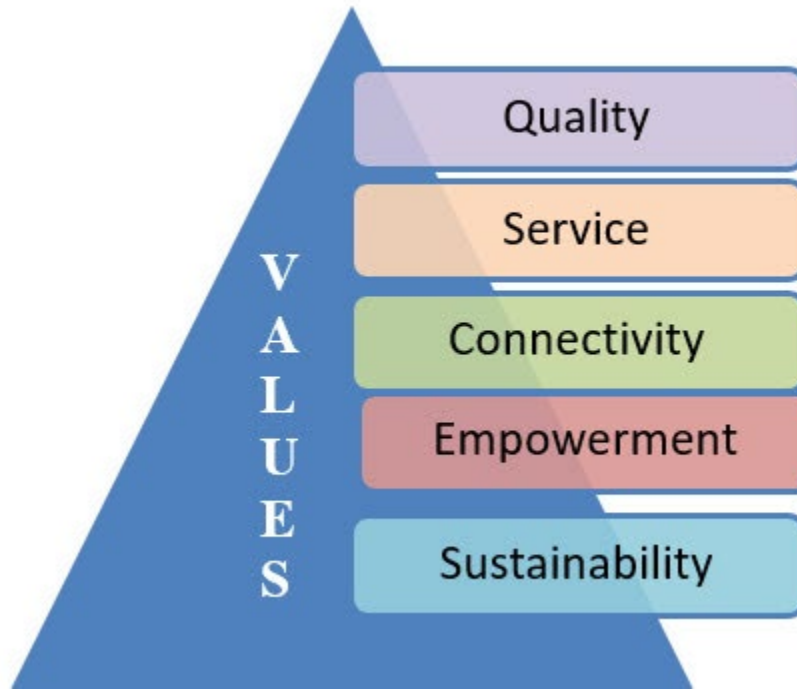
Optimize the adaptation and implementation of novel technologies and new ideas while increasing the awareness of the importance, availability, and use of clean plants.

Goal 3 – Governance and Networking

Optimize Network resources.



Figure 4. The strategic planning team identified and lumped all planning elements into three fundamental strategic goals.



Quality	Service	Connectivity	Empowerment	Sustainability
<ul style="list-style-type: none"> We believe in setting and following quality standards for the production of clean plant material. Our clients should be confident that they are receiving material from known, verified sources with traceable history. This attention to detail supports the <i>start clean, stay clean</i> approach and provides value to American agriculture. 	<ul style="list-style-type: none"> We exist to help the specialty crop industry thrive and grow by providing superior clean plant products to interested growers, nurseries and sellers. 	<ul style="list-style-type: none"> We believe that a dedicated group of individuals who have common goals can be even more productive and successful when they share their experiences and knowledge in a mutually beneficial way. With this approach in mind, we aspire to a higher standard by creating a sharing, caring work environment based on mutual respect and trust. 	<ul style="list-style-type: none"> We believe that leadership, innovation and decision making for the production and distribution of clean plant material should happen at the grassroots-level where the end users are directly linked to the producers to better guide the overall process. This approach creates an inclusive environment where diverse inputs lead to better decisions, clear priorities, and the ability to address change. 	<ul style="list-style-type: none"> We believe in creating a networked organization that can produce and distribute clean plant products in a sustainable manner.

Figure 5. The planning team identified five values to guide its members during the planning process.

Perspectives for Network Advancement 2021-2025

The following perspectives are based on observations by the Network managers and are anecdotal in nature. The intent is to characterize our situation in general terms so that Network members can better understand how they interact, communicate, govern, and plan. The perspectives should be debated and refined for each commodity group to avoid over generalization or a one-size-fits-all approach, as well as promote buy-in and ownership, without which we cannot move forward with mutually acceptable action steps.

Over the last ten years, we have accomplished the following:

- Established a basic organizational structure (e.g., seven commodity governing bodies, membership based on broad representation, special focus teams, and a Governing Board)
- Upgraded and equipped our Clean Plant Centers,
- Characterized the disease situation for our specialty crops,
- Refined methodologies for diagnostics and therapeutics,
- Established foundation plantings,
- Hired and trained personnel, and
- Completed many of the basic tasks identified in the 2007 strategic plan.

The last ten years of the Network's focus and activities could be considered as the *Era of the Center* where funding mainly went to support the immediate needs of the involved Clean Plant Centers. In addition to the production and distribution of clean plant material, sustained funding during this initial growth stage supported facility improvements, equipment purchases, establishment of foundation plantings, as well as the annual gathering of national experts and industry members to assess and respond to plant disease challenges in U.S. specialty crops. By comparison, the next ten years could be considered as the *Era of the Network* where a portion of future funding will support crosscutting, Network-level activities that cannot be effectively conducted by one Center or commodity group, and must be directed by external experts with appropriate representation and contributions from each commodity group and the dedicated Clean Plant Centers.

A traditional organizational chart may not adequately represent our governance structure (see Figure 1). Such charts are useful to identify chain of command and supervisory control. As an interconnected group of “volunteers” or “associates”, we do not report to or take direction from a single Network director or solely from leadership groups identified and linked higher in the organizational chart. The chart separates higher-level governance and coordination activities that pertain to the entire Network, as compared to those activities that occur at the grassroots level in the commodity governing bodies.

Much of the Network's success is due to the quality and expertise of the involved State, university, and industry cooperators. Over the last decade, key individuals have diverted significant time from their full-time jobs and worked in a volunteer capacity to 1) lead and participate in the seven commodity groups, 2) refine emerging technologies for diagnostics and therapeutics of plant stock, and 3) conduct critical Network administrative tasks. The Network has achieved a good balance between its operational priorities for its core activities (i.e., diagnostics, therapeutics, foundation establishment) and basic governance activities such as internal and external communication and planning. However, there is a continual tension between the need to produce clean plant material (i.e., operations) and need to organize our actions (i.e., governance). Whenever the discussion moves away from technical and operations related topics, many Network members quickly arrive at this tension point and ask: How much governance can we tolerate? Where is the balance?

Network members generally gather annually or a bit more frequently during face-to-face commodity group meetings, or by other means, to share information, assess progress, prioritize needs, and plan next actions. Consequently, important discussions and decisions are anchored to an annual or infrequent meeting cycle. Members often require 2 or 3 meetings to fully consider information before making even routine decisions because of the need for broad, consensus-based buy-in and ownership on a given topic or situation. Therefore, decisions that require input and feedback from most of the Network members, like this national strategic plan, may require several years before representatives from the seven commodity groups review, adjust, and adopt actions items tailored to their specialty crop.

As individuals, we purchase various kinds of personal insurance to protect ourselves from the full impact of catastrophic events like car accidents, house damage, personal injury and medical issues. Somewhat similar to an insurance policy, the Network can serve the seven specialty crop groups as an emergency or crisis management response plan during damaging disease outbreaks. During outbreaks, the Clean Plant Centers can provide 1) technical expertise, where the staff could even be considered as *first responders*, 2) a stockpile of clean plant material to support the replacement of destroyed plantings, 3) diagnostic capability for disease detection and delimitation, and 4) a source of industry-selected varieties in foundation plantings. From this perspective, the Network Centers could be more fully adapted for such a role as part of a backup plan when crisis hits a specific crop or region.

Goals and Objectives

Goal 1 – Network Program Operations

Optimize the production, maintenance and distribution of clean plants.

Objectives:

- 1.1 Stakeholder Driven Clean Plant Centers: *Develop a network of Centers that is focused on stakeholders and their needs for clean plant material.*
- 1.2 Existing and New Centers: *Optimize the number of NCPN Centers to ensure optimal and complete specialty crop coverage.*
- 1.3 Protocols, Standards, Collaboration, and Coordination: *Improve and coordinate cleanup activities and maintenance of clean plants.*
- 1.4 Foundation Management: *Assess, support, and manage a network of nationally-focused clean plant foundations and collections.*
- 1.5 Plant Availability: *Develop and maintain up-to-date lists of available cultivars. Facilitate the distribution of clean products at Clean Plant Centers.*
- 1.6 Permitting and Associated Regulatory Matters: *Facilitate discussions with permitting, regulatory, and related program officials in support of Network activities.*
- 1.7 International Clean Plant Program Connections: *Support a Network of centers that are well connected internationally for material access and regulatory purposes.*

Goal 2 - Advancing Special Initiatives

Optimize the adaptation and implementation of novel technologies and new ideas while increasing the awareness of the importance, availability, and use of clean plants.

Objectives:

- 2.1 Use Advanced Diagnostics: *Use more accurate, sensitive and comprehensive detection methods to accelerate the production of clean plants. Additionally, identify risk, including that of not adopting new technologies.*
- 2.2 Foundation Protection: *Use new technologies to safeguard and back up foundation material.*
- 2.3 Natural Disaster Preparation: *Secure clean material in case of natural disasters or disease outbreaks.*
- 2.4 Clean Plant Material Demand: *Determine industry needs for clean plant material.*

- 2.5 Clean Plant Program Education & Outreach: *Facilitate the adoption of plants coming from Clean Plant Centers by nurseries and growers through extension and outreach activities.*
- 2.6 Economics: *Assess the economic impact of the clean plant programs.*
- 2.7 Quality Assurance and Quality Control: *Establish formalized programs and processes for program quality coordination and management.*
- 2.8 Scientific Information Development, Use, and Sharing: *Develop agreement and establish procedures for internal and external data and information development and sharing.*
- 2.9 Interface with Nursery Clean Plant Programs: *Facilitate communication among regulators, research scientists, industry, and Centers to develop clean plant nursery programs to increase the use of clean plant material.*

Goal 3 – Governance and Networking

Optimize Network resources.

Objectives:

- 3.1 Program Governance: *Assess and ascertain NCPN governance and administration needs for fiscal year 2021-2025.*
- 3.2 Governing Bodies: *Accommodate governance for new crops, including funded members and non-funded members.*
- 3.3 Program Scope: *Revisit and re-circumscribe the scope and parameters of the Network with regular reviews and updates.*
- 3.4 Clean Plant Specialty Crop Business Plans: *NCPN specialty crop groups and Clean Plant Centers develop business plans to ensure for the long-term financial stability of specific crops and Centers within the Network*
- 3.5 NCPN Planning Harmonization Strategy: *In developing and implementing national, crop-specific, and center-oriented plans, as well as special topics initiatives, NCPN managers will strive to coordinate and harmonize all efforts. This will include the creation and coordination of technical proposals and other plans.*
- 3.6 Funding Stability: *Identify complementary sources of funding to support and/or enhance clean plant programs.*
- 3.7 Succession Planning: *Develop Succession plan resources to address people, plants, and infrastructure.*
- 3.8 Program Networking: *Governance bodies should meet regularly with stakeholders and networking groups for continuing collaboration and to engage in critical discussions around pertinent network/commodity topics.*

References

Links or references to core NCPN documents foundational to the Network and to this Strategic Plan and Program Implementation Guide 2021-2025.

NCPN Communications Plan:

- National Program Communications Plan – 2019-12-31 version

NCPN Governing Board – Charter and Membership:

- Charter of the NCPN Governing Board – 2020-01-16 version

NCPN Legislative Authority:

- Plant Protection Act Sec. 7721; paragraphs (e) and (g)

NCPN Open Letters of the Governing Board:

- NCPN Governing Board Position Opinions of FY 2015, 2016, and 2017

NCPN Strategic Plan – Historical:

- NCPN Initial Strategic Plan – 2007-05-07 version

NCPN Strategic Planning Process – SWOT and TOWS Analysis:

- Strengths, Weaknesses, Opportunities and Treats – 2017-09-01 version
- TOWS analysis of the NCPN SWOT – 2017-09-01 version

NCPN Web Presence:

- NCPN Cooperator Driven Website
 - <http://nationalcleanplantnetwork.org/>
- USDA Federal Website
 - https://www.aphis.usda.gov/aphis/ourfocus/planthealth/ppa-ppdmdpp/sa_ncpn

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Document History

Document Date	Description of Changes	Additional Notes (as needed)
2007-05-30	Original NCPN Strategic Plan created	
2020-06-22	New NCPN Strategic Plan developed and issued in draft	The original Strategic Plan had served NCPN for 13 years. Goals and Objectives needed to be revisited, renewed, and reissued
2021-02-26	Reformatted for visual consistency and ease of navigation; corrected several errors in text	
2021-03-12	Accepted revisions of 2021-02-26. New version of the NCPN Strategic Plan issued on 2021-03-12	Document split into 2 documents; the Strategic Plan proper and the Appendix
2021-03-28	Separated into 2 documents and revised Appendix footer to reflect unique title of that section.	Completion of above change
2021-06-07	USDA logo applied to header of 1 st page of Strategic Plan and 1 st page of Appendix; contact information updated	
2023-06-01	Updated format of Tables for accessibility	

Appendix

Appendices, including Objectives, Actions, Inputs, Outputs, Outcomes, Metrics, and Timelines, are maintained as a separate document for ease of distribution and update.