Systems Approach to Nursery Certification

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INTRODUCTION

It takes a team to make positive impact and extraordinary improvements in a nursery operation. The evolution of systems approaches in the green industry is facilitating this change to better workforces and their growing practices that promote healthy plants. Where did these systems approaches evolve from?

The Hazard Analysis Critical Control Point (HAACP) program is really the originator of the systems approaches that are discussed, allowing you to move forward producing healthy green industry products. This program was developed for the food industry to prevent contamination in all products that could cause serious human health issues. Systems approaches is essentially total quality management on steroids. Food industry examples include:

1) Consumption safety from bacteria, fungus and virus.
2) Create multiple checks, visual and documented, to ensure product safety.
3) Set a standard of integrity to promote the food industry image.

Let's take a look at what a systems approach actually is. It is individual measures that are integrated into a system that has a cumulative effect. It looks at situation analysis in nursery areas and determines risk by identifying critical control points. After this is achieved, growers can establish BMPs (best management practices) that will establish pest prevention, rapid detection, elimination or containment, and recordkeeping using multiple methods for each acting as check points to be sure issues do not arise.

WHY SYSTEMS APPROACH?

We can always digress into the past to find clues to better processes. The nursery industry was highly reactive, putting out plant problem fires instead of preventing them (control, control, control). This was a very typical mindset of nurserymen for a number of reasons. Two of the most glaring were the lack of technology and mechanization in production that limited growers' ability to spend more time on scouting. Physical labor ruled past decades. Tired growers equal drop in

awareness — leading to plant production by volume to generate sales inventory. There was also a lack of regulation, especially for invasive plants, and discrepancies with use of plant names among operations.

Presently we have many laws and regulations and no shortage of pest, disease, and invasive plant problems. The nursery industry is scrambling to produce non-invasive plants to minimize future threats. The regulatory environment is also using mapping and web-based crawlers to help slow the spread of pests, diseases, and invasive species. There is a higher sense of environmental awareness about issues that cause harm to our surroundings. Social media has enhanced this and is often used as an accountability tactic to keep the green industry honest. Unfortunately, the negative use of social media can be destructive and drive the price of products down. In this era, many green industry operations are still operating reactively to minimizing the spread of pests, disease, and invasive species because of labor constraints.

The future brings hope. Systems approaches are true solutions to ensuring that the green industry moves forward doing things the right way. Self-auditing and policing will be the answer to proactively solve growing problems. This will include the use of sound teamwork among industry, states, federal government, organizations, and universities — hence utilizing the Systems Approach Model. Within systems approaches data becomes "king" and ever more important to be efficient and optimize plant health to keep our industry image at a very high level.

TWO VIABLE SYSTEMS APPROACH SOLUTIONS THAT CAN BE USED IN UNISON TO KEEP AN OPERATION SUSTAINABLE

Two viable systems approach solutions that can be used in unison to keep an operation sustainable for years are possible. What are some reasons we are racing down this path?

Pressure continues to mount from invasive organisms. They are hitchhiking with nursery and greenhouse plants. The public is much more conscientious. They want a premium plant. Any defects sound the panic alarm, and worse, cause the general consumer to demand products for less or even free (margin compression). There is also regulatory pressure to control and slow the spread so agronomic and general commodities are protected. There are also financial constraints by nursery operations and in the regulatory environment. Less staff is common in most operations and at the state/federal regulatory level, leading to more work and less time to do the diligent items it takes to prevent problems.

Systems Approach to Nursery Certification

The first solution was developed by industry professionals, The National Plant Board and AmericanHort / Horticulture Research Institute.

Systems Approach to Nursery Certification (SANC) is a voluntary program for production nurseries and greenhouses to achieve state plant regulatory certification to be able to ship plants domestically (interstate) based on a systems approach. The program is in pilot phase in 19+ growing operations from coast to coast. The fundamental program elements of SANC can be seen in below (Fig. 1).
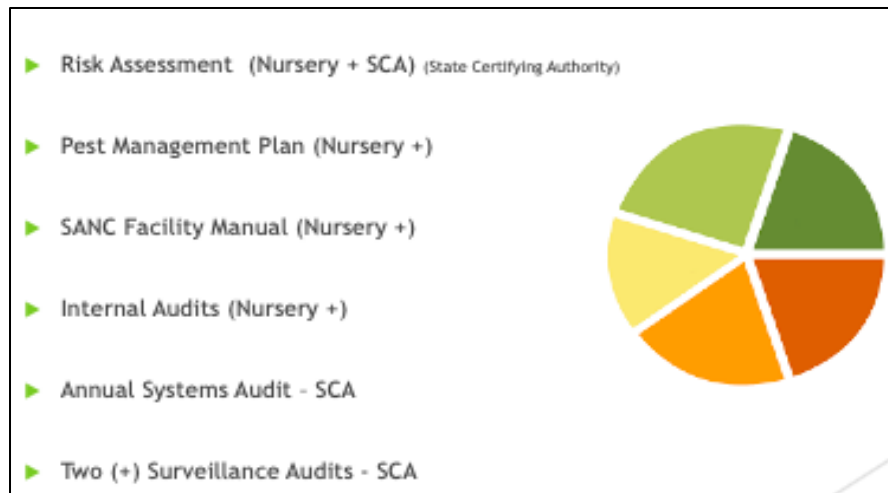
- ► Risk Assessment (Nursery + SCA) (State Certifying Authority)
- ► Pest Management Plan (Nursery +)
- ► SANC Facility Manual (Nursery +)
- ► Internal Audits (Nursery +)
- ► Annual Systems Audit - SCA
- ► Two (+) Surveillance Audits - SCA

Figure 1. Systems Approach to Nursery Certification program elements.

SANC was developed to improve current practices that revolved around a one-time inspection. It helps alleviate the plant load by load inspection. If one thinks about it, scouting is not a once in a while type of thing. Producing great plants depends on watching them all the time with more sets of eyes. Annual inspections are just a one-day snapshot. Do we really want to rely on that? My bet is no. SANC focuses on the processes of producing the best plants. It trains growers to think of tough questions to ask in the important processes they do (the who, what, when, how and why). These questions lead to verification at multiple check points to prevent plant issues from starting in the first place. SANC habits help the workforce identify where a system is failing, forces them to review the process and put forth viable solutions to improve plant production going forward. SANC relies heavily on scouting and documentation. These two duties alone if done correctly can prove that healthy plants are being produced. In SANC a grower must do surveillance and systems-based audits (scouting/documentation).

The systems approach to nursery certification provides:
- Multiple ways to look at and solve risk-based growing issues.
- Employee engagement (more eyes on plants).
- Extended employee learning (certifying job done right).

Growing is all about risk management. No grower wants crop issues and they do their best to prevent shipment of pest/pathogens. SANC aids in preventing problems in a nursery setting by monitoring plants using effective practices. It also helps build an operations team to help accurately diagnose pest, diseases and plant related problems. When issues are seen it allows for growers/teams to address problems and document them, so they are not forgotten about. This documentation can then be used to make massive improvements within an operation typically leading to greater profitability. Below are examples of critical control points and how an operation could prevent them by clean growing examples (Table 1).

Table 1. Examples of critical control points related to *Phytophthra ramorum* on many nursery plant species.

Critical Control Point	Best Management Practice
Placement of container plants on contaminated ground	Do not place containers on contaminated ground
Use of contaminated irrigation water	Treat irrigation water before use
Use of contaminated pots	Use new pots or properly disinfected used pots
Buy-ins of infected pots	Buy only from certified suppliers; quarantine plants for 90 days
Poor drainage	Prevent standing water
Accumulation of infested leafy debris	Prevent accumulation of infested leafy debris

SANC allows for process development that effectively hits all areas within an operation like shipping/receiving, scouting, irrigation, media, container usage, equipment, and disposal of plant material. Cleanliness is often a key to success like discussed in the HAACP program to prevent food-borne illness. SANC develops superb learning/training programs with a bit of help from professionals that help write the program and put it into action. We discussed that data is "king." Systems approaches put what is in the brain into digital action where it can be used to analyze efficiencies and get better health and success of key production process. In a nutshell, SANC engages workforces and helps them adapt to start winning the battle against harmful pests and diseases.

Plant Sentry™
A key piece of the puzzle was missing within the SANC program that growers consistently struggle with — compliance. Intra/interstate regulations are numerous and can change, making it nearly impossible for growers to navigate based on past methods. Most regulations/summaries end up on PDF documents so trying to identify the correct ones and pair

to revolving inventory has not proven to be totally reliable until now. To prove this point, take 500 nursery plants and multiply it by 16 ship states. The total equals 8000 checks that would have to take place to identify potential restriction matches based on pests, diseases, and invasive species alone, not to mention others.

The solution has arrived to make shipping compliant plants super easy — Plant Sentry™ compliance tool (Fig. 2). Plant Sentry™ evolved out of the systems approach for nursery certification to help eliminate purchase of invasive and non-compliant plants. Plant Sentry™ was developed with organizational partnership and critical feedback from industry and the regulatory environment.

Figure 2. Plant Sentry™ seal.

This systems approach tool is the first ever user-friendly regulatory approach for industries, ensuring shipment of compliant plants intra and interstate. It helps growers deal with challenging regulations that are

very difficult to keep up with and revolving and changing statutes. It offers huge relief for those who enter into online sales and have to know all the regulations in the 50 states.

Plant Sentry™ gives growers the necessary options to work with sales vendors, state/federal officials, or a team of industry professionals confidentially who understand both best growing practices and regulation. The detail and advanced capabilities of this systems approach reaches further than growers, creating a winning situation for all to prevent, minimize and eliminate pests, diseases, and invasive species.

Growers are very conscientious of costs and worry about image. Plant Sentry™ is the solution to save countless hours of labor and costs when it comes to verifying compliance. It maintains clear organization and is up to date, a problem that growers had no good way to do. This systems approach tool also gives growers a fighting chance to ensure that plant shipments are done accurately and legally without the hassle of having to spend oodles of time figuring out complex regulation or treatment protocols.

What are some Plant Sentry™ highlights? It locates the source of regulatory information which in its own right can prove to be really challenging. Invasive species are not handled by the same organization in every state. Plant Sentry maintains state/federal regulatory changes the entire year for all 50 states. In fact, this systems approach usually knows when a regulation is coming down the pipeline well ahead of the actual law. Plant Sentry™ makes lists of regulatory items for multistate shipments with revolving plant inventory, identifying matches between plant name and regulatory information. This model eliminates extra steps in the already complicated area of shipping a good plant.

Lists of regulatory items for multistate shipments:

- Plant care prior to shipment.
- Multiple plant inspections prior to staging.
- Greater focus on final plant inspection and secondary treatments.
- Attentive detail to plant loading and packing.
- Placing correct regulatory documents with the plant article.
- Final shipment check- seal packaging and close transport doors.

Plant Sentry™ generates an easy list to be taken to state or federal officials creating a winning situation for both grower and inspector. Besides, it is impossible for a regulatory official to know a grower's inventory. It is also the responsibility of the grower to know the regulations. Other Plant Sentry™ advantages exist to help improve plant health and quality. Some examples may include directing growers to areas of need in order to treat plants timely, or provide them with the capability to eliminate non-compliant and invasive plant shipments before product purchase. Plant Sentry™ also creates a positive atmosphere between growers, officials, third parties, and consumers because all would know that due diligence was taken to prevent problems from starting. It also archives critical records that prove a grower is verifying.

Plant Sentry™ process is simple. The systems approach model receives a grower's inventory, plant sizes, and types (states of origin/destination) and does a thorough botanic nomenclature clean-up to ensure that the plants in question can be verified. This is a huge benefit to growers because it double checks that they are representing plants correctly, especially when dealing with branded items.

After this is complete, we send back any differences to be sure we are talking about the same plant. Once this is complete, we are ready to cross this information with the 50 states regulations maintained within the Plant Sentry™ database. A beautiful restrictions report summary is generated that a grower can review and take to the regulatory official to be sure of obtaining the necessary compliance to ship to point A or B. The third basic step is use of the portal tool that can be used by marketing, sales forces, production, receiving, and shipping areas to maximize correct sales and shipment, keeping consumer confidence high. The Plant Sentry™ tool can be used manually and also has API capabilities that can tie into inventory systems and send verification upon request. This is another beauty of systems approach —

multiple methods to create success in all areas of an operation! The program also offers emergency response in the accidental shipment of a pest, disease, or invasive plant. The timely and organized approach that is used puts fires out before they can get out of control and damage a grower's image.

Since Plant Sentry™ eases compliance for an operation, it allows for use of other predictor models, aiding in production of non-invasive, pest- and disease-resistant plants. It allows focus that can improve practices and opens up other time to complete other certification programs like SANC/MPS and view efforts by invasive species organizations like Plant Right® Pre-Tool. The verification seal is also a signal that Plant Sentry™ and its users are here to end bad plant shipments (Fig. 3).

Figure 3. Plant Sentry™ verified shipment seal.

QUESTIONS COMMONLY ASKED ABOUT SYSTEMS APPROACH

Three questions commonly are asked about systems approach.

- How will it make you more profitable?
- Why should you adopt a systems approach philosophy?
- What steps does it take to "certify" profitability?

The How Profitability?

- It helps grow and ship a healthy quality product leading to return customers = greater profits.
    - o SANC trains staff eyes for constant vigilance through scouting, and audits the processes necessary to keep product quality high.
    - o Problems avoided or caught early mean money saved.
- Helps develop your workforce into exceptional leaders.
    - o Your product can only be great if you have exceptional people growing it and have them focus on what they do best.
- It places a solid team around your company name and product in a tough competitive environment (inside personnel and outside-TEAM concept).
- Plant Sentry™ eliminates the hassle of figuring out what you can ship where, allowing your staff to focus on SANC,

Best Practices and your #1 asset, employees.
- Plant Sentry™/SANC will help you eliminate unnecessary crop inputs and labor, redirecting it into positive gains.

The Why to Adopt?

Systems approach programs will be recognized by all states and most likely our North American neighbors.

The What Certifying Results?

Systems approaches hold you accountable by multiple avenues. The auditing that is complete using this model ensures that processes have been completed. Multiple methods that include internal verifying power (learning and training), external certifying power (optional oversight) and external certifying authority (national and state" Help" line) have been time tested to generate extraordinary results. The military has used similar models to ensure success in the field. This success is documented to improve upon in subsequent operations. The systems approach way of certifying boils down to simple documentation. Are you doing what you say you are doing? Both systems approach models discussed are an unbeatable combination if you want to stay at the top of your game.