

# ***National Clean Plant Network***

***INNOVATIONS IN PEST  
RISK MANAGEMENT***

***CASE STUDIES by Country***



*Nate Nourse, Sales Director, Nourse Farms Inc.  
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# Nate Nourse

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- Sales Director, Nourse Farms in Whately, MA
- Vice Chair, National Clean Plant Network-Berries
- Berry Production Specialist (since 1990)

# Private Clean Plant Center

- Tissue Culture Lab  
Virus tested plantlets are propagated under sterile conditions
- Screen House for Virus Tested Foundation Stock Plants  
Supplies the Meristems
- Screen House for Quarantine Plants  
Imported Offshore Varieties
- Heat Treatment Chamber  
Virus Eradication



# Nourse Farms



# In House Virus Indexing

- Virus indexing and DNA finger printing utilizing molecular techniques
- PCR - Polymerase Chain Reaction Test
- Elisa- Immune Response Test
- Sap Inoculation and Leaf Grafting to Indicator Plant
- Third Party Testing – USDA Corvallis



# PCR Testing



# Taking Meristems





# Growing Meristems





# Multiplication





# Rooting Plantlets





# Nursery Ready



# Field Multiplication

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- Crop Rotation 3-8 Years.
- Soil Fumigation
- Pest Management Plan
- Weed Management Plan



# Field Multiplication

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- Raspberry parents- Only Tissue Culture
  - Strawberry parents- 1<sup>st</sup> and 2<sup>nd</sup> Generation
- Eradicated Bacterial Angular Leaf Spot

# What else?

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- Following guidelines for newly proposed national certification process thru NCPN, we have begun to randomly test plantings before they are harvested for sale.
- This process gives us another level of confidence that the final product hasn't been infected with a virus.
- Nourse Farm's dedication to this rigorous testing and production process allows us to deliver the healthiest plants available for longer, more productive seasons.



# NCPN Pest Risk Benefits

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- Over time eradication of Virus naturally reduces risk.

Once Clean, It is relatively easy to maintain.

- Transfer from Nursery to Grower is almost Eliminated. 99.9% Clean

Trying to be perfect would cost too much.

# Does NCPN have value?

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- Sharing virus detection protocols, especially the virus-specific primers for molecular detection methods
- Third-party testing through the NCPN-supported centers to confirm test results and methods
- Developing Next Generation Sequencing
- Shipping to Canada and Mexico will continue to be a profitable and expanding part of our business because producers and regulators accept and value clean plant material
- In North America, our clean stock has a higher perceived value; growers pay our higher prices
- Specifically, sales to Canada and Mexico have not slowed in spite of current currency exchange with 20-25% premiums



*Start clean, stay clean*

**NCPN**

**National Clean  
Plant Network**