

# Brief Update on Nematode Certification for Field Grown Nursery Stock

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# History of the Nematode Certification

- Since the 1920s, plant parasitic nematodes widely recognized as serious pests of agricultural crops in California
- In the 1950s, use of laboratory methods revealed that nematode infestations were more severe than previously realized, leading to regulatory problems for nurseries
- In 1959, the Nematode Control Program policies and Nematode Study Committee were established

# History of the Nematode Certification

- The first meeting of the Nematode Study Committee was the starting point for the Nursery Stock Nematode Certification Program
- In 1961, the program required laboratory inspections in nursery crops, except for plants grown in fumigated grounds with specified pre- and post-treatment practices
- In 1969, this program was a clear success, with less than 1% of nursery stock acreage found infested with nematodes of concern
- This same laboratory testing and soil treatment pattern is still used today for Nematode Certification

# Recent Updates

- CDFA Nursery Services has been fielding a substantial increase in contacts regarding non-fumigant and organic alternatives for fumigation
- These concerns relate to regulations on approved treatments for field grown nursery stock



# Regulations

## General

Regulations for the Nursery Stock Nematode Control Program (3 CCR Sections 3055 to 3055.6 and Section 3640) specify soil treatment and handling procedures which, when verified and documented, are approved to ensure nematode cleanliness of both field and container grown nursery stock.

# Regulations

## General

Per 3 CCR § 3640, it is mandatory that nursery stock for farm planting be commercially clean with respect to economically important nematodes

Exempted from this requirement are garlic, mint, onion, and seed potato nursery stock and any nursery stock grown only in non-soil media

# Regulations

## Field Grown Nursery Stock

### 3 CCR § 3055.5. Certification

#### **(a) Certification Based on Approved Treatment**

Certification based on approved treatment involves the planting of nursery stock (including seed, unrooted cuttings, rooted cuttings, plantlets or seedlings) in approved treated soil and protecting it against nematode contamination until harvest and sale.

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# Laws and Regulations

## Field Grown Nursery Stock

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# Regulations

## Field Grown Nursery Stock

### 3 CCR § 3055.5. Certification

#### Approved Field Treatments

Methyl Bromide

Methyl Bromide/Chloropicrin

1,3-dichloropropene



#### Concerns with Approved Treatments

Cost of fumigation (chemicals, tarping, labor, etc.)

Restrictions on use

Current and future availability

# Recent Updates

- In November 2024, the Nursery Stock Nematode Certification Forum was approved by the Secretary as a public venue for experts to present proposals for new certification protocols, including soil treatments for field grown nursery stock
- On February 18, 2025, Dr. Andreas Westphal (University of California, Riverside) presented on a new certification protocol utilizing anaerobic soil disinfestation (ASD) as preplant soil treatment for perennial crop nurseries



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# Proposed ASD Protocol

- Apply 9 t/A of rice bran
- Incorporate it with a rototiller
- Install irrigation lines, cover soil with TIF (tarping), and add water (150 L/m<sup>2</sup>)
- Keep soil moist for 1 month (25 L/m<sup>2</sup>)
- Remove TIF, allow for aeration, and plant crop
- **[Optional]** Apply postplant Salibro nematicide after one growing period if producing stock >12 months



Credit: Andreas Westphal



# Current Status

- Limitations:
  - High application cost (tarping, rice bran, water inputs)
  - Soil textures - sandy soils more challenging
  - More information needed about optimal soil conditions (e.g., temperature, texture) for treatment efficacy
- Awaiting publication
- CDFA unable to consider incorporating this protocol as an approved treatment until it is published in a peer-reviewed journal



# **Any questions?**

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