



BIOSECURITY CONSIDERATIONS FOR NURSERY CROP PRODUCTION

To optimize the production of healthy plants in a nursery production system, growers should use a combination of Best Management Practices and biosecurity measures. It's important to have healthy plants, as they are better able to withstand pest pressure. The growing conditions required for producing healthy crops will differ between nurseries, as it is largely dependent on local environmental conditions and site-specific production practices.

Several biosecurity measures must be considered to ensure the production of healthy nursery plants, including the following suggestions.

ENVIRONMENT

- **Manage potential plant stress as plants are more susceptible to pests under conditions of stress. Some causes of stress include:**
 - » Physical injury caused by improper equipment use or pruning
 - » Environmental stress such as frost heaving or water stress (excess or drought)
 - » Production practices such as crop density, pesticide use, hardening-off
- **Protect against weather extremes with row cover or blankets**
- **Develop and implement a management plan to respond to unavoidable environmental conditions and the resulting damages (ex. hurricane-force winds)**
- **Manage growing conditions to support crop growth while minimizing pest susceptibility by looking at conditions such as humidity and airflow.**
 - » High humidity may promote pest establishment but is also conducive to the establishment of fungi, moulds, etc.
 - » Consider increasing airflow in greenhouse systems, or increasing plant spacing to minimize disease establishment
- **Manage weeds around production areas as they can act as alternate hosts for pests, or contaminate the crop with weed seeds**

INPUTS

- **Develop and monitor an adequate fertilizer program to minimize the risk of nutrient deficiency or toxicity, both of which may encourage pest development and more susceptible plants**
- **Soil and growing media are a potential source for pests. Be sure to inspect inputs prior to planting and treat heat pasteurization, solarisation, fumigation as necessary.**
- **Test irrigation water regularly for nutrient content and potential pathogens**
- **Monitor different irrigation types for associated risks and mitigate as necessary**
 - » Bacterial diseases may spread through water splashing, so droplet size may need to be adjusted to minimize splash

PLANT MATERIAL SELECTION

- **Purchase plants from certified clean plant networks or inspected nurseries**
 - » Look into their biosecurity implementation and Integrated Pest Management (IPM) programs if possible
- **Purchase certified pest-free planting stock for propagation (ex. virus-indexed)**
- **Choose plants and plant varieties appropriate to the local growing conditions**
- **Manage the introduction of pests especially at times when planting material is particularly susceptible**

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BIOSECURITY CONSIDERATIONS FOR NURSERY CROP PRODUCTION (CONT)

CROP PROTECTION

- **Implement an IPM program**
 - » Include regular scouting, weather monitoring, record-keeping, pesticide resistance management, etc.
- **Know/establish pest control thresholds**
 - » Different thresholds for each crop/pest combination
 - » Thresholds may vary between regions
 - » Thresholds will vary depending on the purpose of the control (suppression, eradication, management)
- **Maintain records on all control measures and responses**
 - » Identify appropriate use patterns
- **Be aware of secondary impacts from control measures**
 - » Consider the effect on both target and non-target pests
 - » Ex. Neonicotinoid application during bloom affects pollinator activity
- **Use cultural practices to disrupt pest lifecycles**
 - » Crop rotation, trap crops
 - » Reduce the need for fumigation

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