Pest Management in Vegetables with Cultural Practices

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Cultural practices

- Crop rotation
- Cover crops
- Cultivars
- Cultivation
- Planting
- Irrigation
- Sanitation
- Nutrition
Crop rotation

- Rotate with unrelated or non-susceptible hosts
- Rotate with resistant cultivars
- Rotate with green manure crops
Crop rotation

- Breaks pest cycles

  - Rotate with broccoli
  - Rotate with resistant tomato or bean cultivars

Verticillium wilt in tomatoes

Root knot nematodes in lettuce
Crop rotation

- Recycles nutrients
Crop rotation

- Enhances soil quality
  - Maintains balance between the accumulation and decomposition of organic matter
  - Improves soil structure
  - Prevents erosion
Cover crops

- Weed suppression
- Attract natural enemies
- Improved water penetration
- Increased microbial activity
- Increased nutrients
Cultivars

• Disease and pest resistant varieties
  – Tomato cultivars HMX 4801, U 567, UGX 10405, DRI 8058 are resistant to Fusarium wilt, Verticillium wilt, bacterial speck, spotted wilt and root knot nematode.
  – Glossy cultivars of certain crucifers with reduced wax are resistant to diamondback moth.

• Early or late maturing varieties to avoid the severity of pest incidence.
Cultivation

- Thorough cultivation to manage pests and weeds

*Liriomyza* leafminer damage in spinach

Virginia Tech Weed ID Guide
Irrigation

- Type of irrigation influences pest occurrence
Irrigation

• Amount of irrigation

• Allowing foliage to dry between irrigations

• Higher beds in heavier soils for good drainage
Planting

- Quality seeds and transplants
- Plant beds
- Location
- Time

Downy mildew in broccoli
Sanitation

• Removal of weeds and crop residue
  – Broad mites and aphids on peppers and crown root aphids in carrots
  – Thrips in tomatoes and peppers after harvesting radicchio

• Sanitation of the field equipment
  – Basal rot transmitted through contaminated equipment
Soil amendment

- Amend soil to maintain optimal conditions required for the crop
  - Club root of broccoli
  - Colorado potato beetle
Nutrition

- Abiotic disorders

- Attract pests and promote weed growth

- Weaker plants more susceptible to pests and diseases

![Cabbage tipburn](umassvegetable.org)
Conclusions

• Simple cultural practices can have major impact on diseases and pests

• Choose the practices best suited for the situation
Thank you

Questions?