Organic Pest and Weed Management for Service Providers in the South

This factsheet is meant to provide extension agents and technical service providers in the south with an overview of organic standards and regulations, and increases knowledge of organic systems to effectively support organic and transitioning-to-organic farmers.

For more organic resources, check out www.ofrf.org/resources.

Why is Pest Management Important?

- Weeds, insects, and diseases contribute to crop yield loss
- They affect crop quality → less marketable product
- Labor intensive and expensive, requiring trial and error and pivots in management
- Affects consumers → product availability, prices

Aphids

A Systems Approach - Many Little Hammers

- Using multiple approaches in a systems-thinking, integrated pest management (IPM) approach, rather than a "silver bullet"
- Starts with learning - what are the common pests in the region? What is their preferred habitat, their life cycle, and their natural enemies?
- Prevention is key → cultural and biological focus with predetermined action thresholds
- Consistent monitoring and recordkeeping to determine when a different approach may be needed

Parastic braconid wasp cocoons on a tomato hornworm

National Organic Program (NOP) Requirements

§ 205.206 Crop pest, weed, and disease management standard.

The producer must manage crop pests, weeds, and diseases using:

- Crop rotation
- Proper selection of plant species and varieties
- Habitat for natural enemies of pests
- Mulching, grazing, flame weeding, mowing
- Sanitation measures
- Use of approved biological controls

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Table 1. Examples of practices organic farmers can use to meet NOP § 205.206 Crop pest, weed, and disease management requirements.		
Weeds	**Insects**	**Diseases**
Cover cropping	Monitoring	Rotate crop families or select resistant crop varieties
Tillage, cultivation, hand weeding	Timing planting to avoid pest life cycles; rotating to non-host crops	Pruning & thinning to improve air circulation
Mulching	Exclusion with row covers/netting	Drip irrigation vs. sprinklers to reduce foliar moisture
Mowing, grazing	Traps, repellents, pheromones to disrupt pest mating	Soil solarization
Flame weeding	Habitat for biodiversity and natural enemies	Remove infected plant debris from production areas
Crop variety selection	Parasitoids	Build soil health to support the soil microbiome and plant health/resiliency
Manipulate seeding rate, row spacing	Organic-approved pesticides	Organic-approved fungicides

Southern pea cover crop

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Select Research Takeaways

- Aim for at least 6,000 lb/ac of cover crop biomass with winter cover crops planted after crop harvest to help reduce weed density ahead of the next season's crop (Weisberger et al., 2023).
- Manipulate crop seeding rate and row spacing to boost crop competitiveness with weeds (Vann et al., 2016).
- Use the "push-pull" companion planting method in high tunnels to repel and trap pests while supporting populations of beneficial insects (Legaspi et al., 2016, 2020).

Thrips

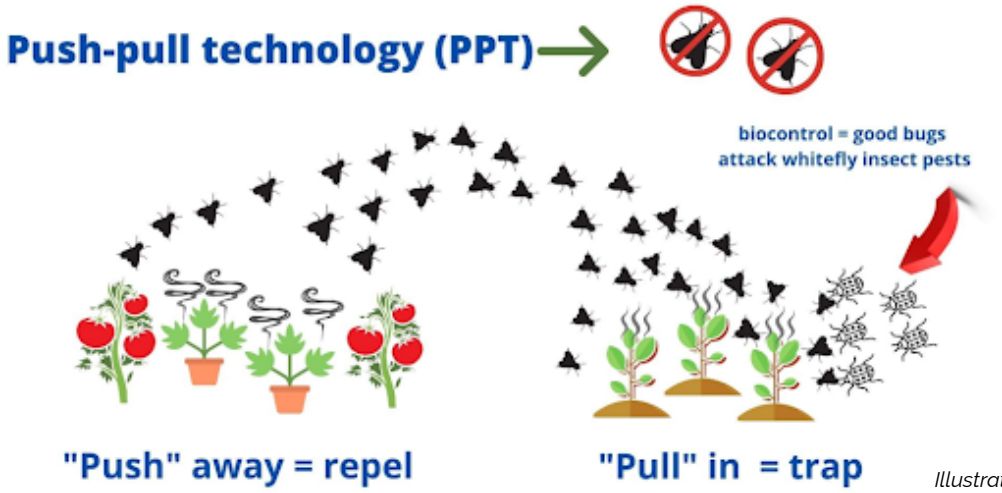

Illustration: University of Florida

- Select early-maturing and smooth-leaf varieties of cotton to help with cotton bollworm management (National Cotton States Arthropod Pest Management Working Group).
- Use anaerobic soil disinfestation (ASD) to decrease the viability of soil pathogens and weed seeds (Vincent et al., 2024).
- Support a healthy soil microbiome to boost crop resiliency and reduce disease pressure - green manures, compost, and cover crops such as sunn hemp, southern pea, and sorghum-sudangrass (SSARE).

Cotton bollworm

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Resources:

- **USDA AMS National Organic Program**
- **Resource Guide for Organic insect and Disease Management**
- **Weed Management on Organic Farms**
- **Building Healthy Living Soils for Successful Organic Farming in the Southern Region**
- **Southern Cover Crops Council**
- **University of Florida Institute of Food and Agricultural Sciences**
- **OFRF Organic Research Hub**

References

Best Management Practices for Bollworm in U.S. Cotton. 2018. National Cotton States Arthropod Pest Management Working Group. https://southernpests.org/.

Legaspi et al. 2016. "Push-pull" Technology and Companion Planting: A Dual Strategy for Insect Pest Management in High Tunnel Vegetable Production and Organic Systems. https://ask.ifas.ufl.edu/publication/HS1486.

Vann et al. 2016. Row Spacing and Seeding Rate Effects on Canola Population, Weed Competition, and Yield in Winter Organic Canola Production. https://doi.org/10.2134/agronj2016.02.0097.

Vincent et al. 2024. Effects of Anaerobic Soil Disinfestation for Soilborne Disease and Weed Management on Baby Leaf Lettuce Performance in a High Tunnel Organic Production System. https://doi.org/10.3390/agronomy14040764.

Weisberger et al. 2023. Do cover crops suppress weeds in the U.S. Southeast? A meta-analysis. https://doi.org/10.1017/wsc.2023.21.

To access the digital version of this resource with live links, use the QR code to the right or visit:

https://ofrf.org/resource/organic-pest-and-weed-management-for-extension-agents-in-the-northwest/

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