

Our Farms, Our Future Conference

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SARE PROJECT LS16-268

Integrating row covers into sustainable production systems to strengthen the sustainability of specialty crops farmers

Introduction

The purpose of this project is to strengthen the sustainability of vegetable farmers by demonstrating the full benefits of using low tunnels year-round in a sustainable production system. In contrast to high tunnels, low tunnels are more affordable and are movable to allow for rotations with cover crops. We have formed a team with expertise in vegetable crops production (organic and conventional), pests and disease management, and soil science for an interdisciplinary assessment of the potential benefits and agro-ecological interaction of integrating row covers into a sustainable production system. The team includes experts from Virginia Tech, Tennessee State University, and Virginia State University.

The specific objectives are:

1. To integrate row covers and insect netting into sustainable production systems to improve growing conditions and productivity of vegetable crops year-round.
2. To determine the level of protection against pests and diseases, and concomitant pesticide use.
3. To determine nutrient and water requirements and their use efficiency under row cover.
4. To educate farmers and urban communities about the full benefits of using row covers and insect netting year-round through collaborative on-farm studies and outreach activities.

Research activities



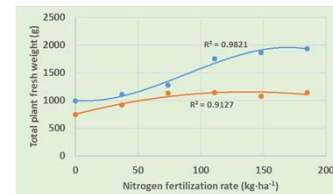
Spring production of kale and chard. Eastern Shore AREC, VA



Right - Insect feeding in fall kale: row cover (top); insect net (middle); open (bottom). Eastern Shore AREC, VA



Summer basil production and nutrient use efficiency. Eastern Shore AREC



Outreach activities

On-farm studies with participating farmers for them to experience the benefits of using row cover year-round. Dissemination through seminars and field days to showcase the research results and the benefits of using row covers year-round.



Spring okra at Lois's Produce, Westmoreland County, VA



Spinach at Garner's Produce, Westmoreland County, VA



Lettuce at Blenheim Organic Gardens, Westmoreland County, VA

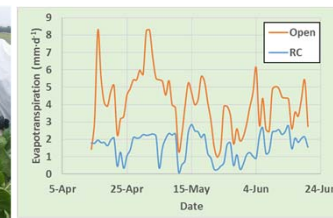


Field day at Tennessee State University, TN



Field day at the Eastern Shore AREC, VA

Right - Reduced evapotranspiration that resulted in irrigation water savings. Spring Brussels sprouts. Eastern Shore AREC, VA



Summary of results:

Low tunnels with row covers

1. Improved micro-environmental conditions, enhanced vegetative growth, and increased yield in leafy vegetables.
2. Reduced evapotranspiration and irrigation water requirements, so water use efficiency increased.
3. Reduced pest feeding injury and pesticide applications.
4. Increased nutrient and land use efficiency.

Impact

1. Gaining knowledge about the benefits of row covers for year-round vegetable production
2. Enhancing production capacity of local vegetable growers and urban communities by adopting protected production systems
3. Expected to increase year-round supply of fresh and healthy vegetables and improve the sustainability of vegetable farmers and local communities in Virginia.