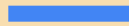


Fitting it all in: Moveable Tunnels and More at Siena Farms



By Mishreky Lawandy

Season Extension Methods

- Moveable High Tunnels
- Low Tunnel Kale
- Row Cover for Field Plantings
- Forcing Chicories



Moveable High Tunnels

3 Moveable High Tunnels (72' x 30')

- Each tunnel moves over 2 plots of ground.
- Tunnels are on rollers and can be pushed by 10-12 people or carefully with a tractor.



2021 - 2023 Tunnel Rotations

Tunnel A:

- Swiss Chard
- Tulips
- Cover Crop
- Ginger
- Kale



Tunnels B+C:

- Kale
- Solarization
- Tomatoes
- Cover Crop
- Chard / Kale



Tunnel A (Fall / Winter) [Plot 1]

Swiss Chard

- Direct Seeded (Sept. 25, 2021)
- Harvested / Thinned to 6" (Dec 13, 2021)
 - Approx. 800 Bunches
- Second Harvest (Jan. 31, 2022)
 - Approx. 800 Bunches
 - Cleared to ground.



Tunnel A (Winter) [Plot 1]

Tulips

- Planted (Feb. 17, 2022)
 - 10,000 Bulbs
- Emergence (March 16, 2022)
- First Harvest (March 23, 2022)
- Second Harvest (April 4, 2022)
 - 4500 Stems
- Final Harvest (April 11-20, 2022)



Tunnel A (Spring / Summer) [Plot 2]

Ginger

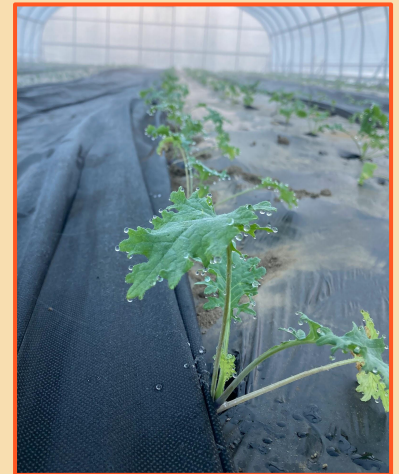
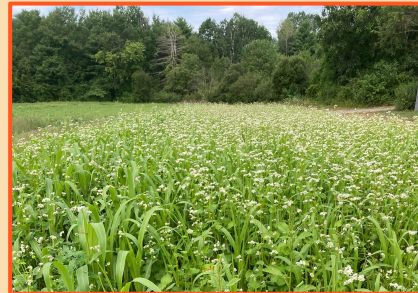
- Cover Crop Plot 1 (April-May 2022)
 - Undersown in Tulips 2 Weeks Prior to Final Harvest
- Tunnel Moved to Plot 2 (May 2022)
- Planted (May 11, 2022)
- Sidedress 1 + 2 (June 25, 2022) (July 12, 2022)
- First Harvest (Sept. 6, 2022)
- Final Harvest (Oct. 21, 2022)
- Cover Crop Plot 2 (Oct. 22, 2022)



Tunnel A (Fall / Winter) [Plot 1]

Kale

- Cover Crop in Plot 1 (Aug. - Sept. 2022)
 - Field Space Cropped Through Season
 - Placed in Cover Crop in Early Aug.
 - Terminated Late-Sept.
- Transplanted (Oct. 5, 2022)
- Tunnel Moved Over Plot 1 (Oct. 18, 2022)



Tunnel A Rotation Summary By Plot

	Plot 1	Plot 2
Fall / Winter:	Chard	Mulched
Winter:	Tulips	Mulched
Spring / Summer :	Field Crops/ Cover Crop	Ginger
Fall / Winter:	Kale	Cover Crop

Tunnels B + C (Fall - Spring) [Plots 1 + 2]

Kale + Solarization

- Transplanted (Sept. 25, 2021)
- Tunnels Moved to Plot 1 (Oct. 2, 2021)
- Harvested 4-5 Times Throughout Winter
- Tunnels Moved to Plot 2 (March 17, 2022)
- Solarizing Plot 2 (March 17 - April 6, 2022).



Tunnels B + C (Spring / Summer) [Plot 2]

Cherry Tomatoes

- Transplanted (April 7, 2022)
- First Harvest (June 6, 2022)
- Final Harvest (Aug., 2022)
- Cover Crop in Plot 2 (Aug. - Oct., 2022)



Tunnels B + C (Fall / Winter) [Plot 1 +2]

Kale / Swiss Chard

- Cover Crop in Plot 1 (Aug. - Sept. 2022)
 - Field Space Cropped Through Season
- Transplanted (Oct. 5, 2022)
- Tunnels Moved to Plot 1 (Oct. 18, 2022)
- Plot 2 Seeded in Cover Crop for Fall/Winter
- Kale / Swiss Chard Will Remain in Tunnels Until Spring



Tunnels B + C Rotation Summary By Plot

	Plot 1	Plot 2
Fall / Winter:	Kale	Mulched
Winter / Spring:	Outdoor Kale	Solarizing
Spring / Summer :	Field Crops/ Cover Crop	Tomatoes
Fall / Winter:	Swiss Chard / Kale	Cover Crop

Low Tunnels for Fall / Winter Kale

- Tunnel Supplies:
 - Hoops
 - 10' Metal Conduit
 - Spaced Every 5' in Bed
 - 19 Weight Row Cover
 - 30 Weight Row Cover
 - 6mm Greenhouse Plastic
 - Cut 1' Long Vents Every 4-5'
 - Sandbags
 - Clamps
- Used to extend kale plantings' harvestable period into the deep Winter / overwinter plants for Spring regrowth.



Row Cover for Season Extension

- Used to extend the season on both ends
- Weights^(1,2):
 - Ag-19: 2-4 degrees frost protection (down to 28F)
 - Ag-30: 6-8 degrees frost protection (down to 26F)
 - Ag-19 + Ag-30: 10 degrees frost protection (down to 22F)



Forcing / Blanching

- Forcing^(4,5): Inducing active growth outside of the growing season
- Blanching⁽³⁾: Depriving crops of light to prevent photosynthesis and induce color / flavor changes
- Systems:
 - Temperature controlled space (old cooler)
 - Packing roots in damp sand
 - Packing roots in water bath
- Varieties:
 - “Incantatore”, *Uprising Seeds*, (Tardivo)
 - “Voglia”, *Uprising Seeds*, (Goriziana)
 - “Rosa Isotonia”, *Uprising Seeds*
 - “Totem”, *Johnny’s Selected Seeds*, (Belgian Endive)



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Thank You

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