

Living Mulch for Organic Systems



Sawyer Farm

- Western MA, 1600'
- Cold, rocky, poorly drained, sloped
- Five acres vegetables, mostly low-value storage crops: cabbage, carrot, corn, garlic, hemp, onion, squash.



Sawyer Farm

- Low overhead — no mortgage, few employees
- Sales: 1/3 farmstore, 1/3 hemp, 1/3 wholesale storage veg
- No farmer neighbors...no embarrassment



Horses taught me my first important lesson in tillage reduction. Do less.

Low-hanging fruit. (Plow depth, disc angle, etc.)

Cover cropping, compost and contoured beds improved yields and health for the first 5-6 years, but we continued to see erosion and yield/health plateaued.

I dismissed no-till/low-till as impractical for OG production even at our small scale.



Yupadee Kobkul- Boonsiri

1968-2020



What would the ideal crop system do?

More Life, Less Death

- Increase soil health (reduce tillage, eliminate erosion, increase SOM)
- Reduce GHGs
- Increase biodiversity

Make Economic Sense for the Farm

- Economically viable — increase yields and/or decrease labor and inputs

Be Pleasant

- No weeding, no row cover, no mud, aesthetically pleasing.

Be Useful to Others

- Scale up and down — all this experimentation might as well be useful to other farmers

Perennial Clover Living Mulch

We'd been undersowing Dutch White clover for years. We wondered whether, instead of discing it under, we could grow crops right in it.

This clover was undersown in early July, at last cultivation. This photo was taken on Oct. 15.



Perennial Clover Living Mulch

**Spring after Establishment
(Year Two Clover)**

We used to disc it in at this point.



- We initially planted into the clover with a bulb auger on a cordless drill.
- Now we're using a modified transplanter.



Perennial Clover Living Mulch

Transplanting Storage #4
Cabbage, 6/16

Mow clover, and then
transplant directly into
clover sod.



Cabbage, 7/1



Cabbage
7/27



Cabbage 9/25

- Irrigated cabbage fertilized at 90# N/acre yielded 29,800 lbs./acre with 98% marketable heads



Cabbage post-harvest

- 100% soil cover
- Living roots in the ground 365



Perennial Clover Living Mulch

Believe it or not, it works!

Delicata squash transplanted
6/2



Delicata, 6/18



Delicata, 7/8 - after mowing



Delicata, 7/22



Delicata, 8/17



Broccoli



Tomatoes



Direct-Seeded Beans



Hemp



Perennial Clover Living Mulch

Upsides

- Tillage only occurs every 4-5 years to renew clover stand (Bare soil year is an opportunity to grow crops that don't work in this system — onions and carrots, for us.)
- Fixes C and N throughout growing season
- Living Roots 365 days/year
- SOM up, biodiversity up
- Labor and fuel savings (3 tractor passes - mowing, transplanting, brush hogging)
- No weeding, no row cover
- Easy to implement, easy to plan
- Easy to bail out

Perennial Clover Living Mulch

Downsides

- Clover competition and cooler soil temps doesn't work for some crops (pepper photo from 7/27)
- Reduces yields on some crops (offset by labor/input savings? Focus of 2023 SARE grant.



So many questions still!

- Which crops are economical?
- Which varieties work best?
- What are the moisture dynamics?
- What effect does soil type/climate have?
- So many trials to run!

Interested in Perennial Clover?

Get in touch...

- We're starting a non-profit that provides payments for implementation and crop insurance on trial acreages and we're looking for farmers to run trials.
- We're hiring for a position to gather data and do fieldwork for a 2023 SARE grant to do side-by-side trials on yield and labor.
- Email pcsfarmpartner@gmail.com