

Managing Weeds Passively with No-till
Permanent Raised Beds

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No-till Permanent Raised Beds

Maybe a valuable management strategy for

- Reducing weed pressure
- Improving soil health
- Increasing production potential (crop yield)



Weed Management

- Herbicides
 - Herbicide resistance
- Tilling
 - Compromise soil health and disturb weed seed bank, requires equipment
- Plasticulture
 - Costly, requires special equipment, and creates disposable waste products

*Create annual expenses and require hours of on farm labor

*Crops outcompeted by weeds = lost income for the farmer



Soil Health

- Increase soil organic matter (SOM) formation
 - Can be used on “marginal” lands
- Increasing soil water holding capacity
- Improving soil carbon storage
- Reducing leaching and runoff



Production Potential (Yield)

- Not spatially constrained to fit farm equipment
 - Can plant more intensively
- Lower barrier to entry
 - Decreased long-term capital inputs







No-till Permanent Raised Beds



Bed
(Row)

Walkway
(Inter-row)

Other Passive Weed Management Strategies





University of New Hampshire researchers have found that using black tarps and cover crops successfully suppressed weeds in an organic vegetable system





Silage Tarps

The UV-treated polyethylene tarp we use for clearing our permanent beds of crop residues while keeping weeds in check are silage tarps. Jean-Martin Fortier The Market Gardener









Research Results: Weed Management

- Preliminary results from year one of this two year study indicate that our farm has high weed diversity, but low abundance.

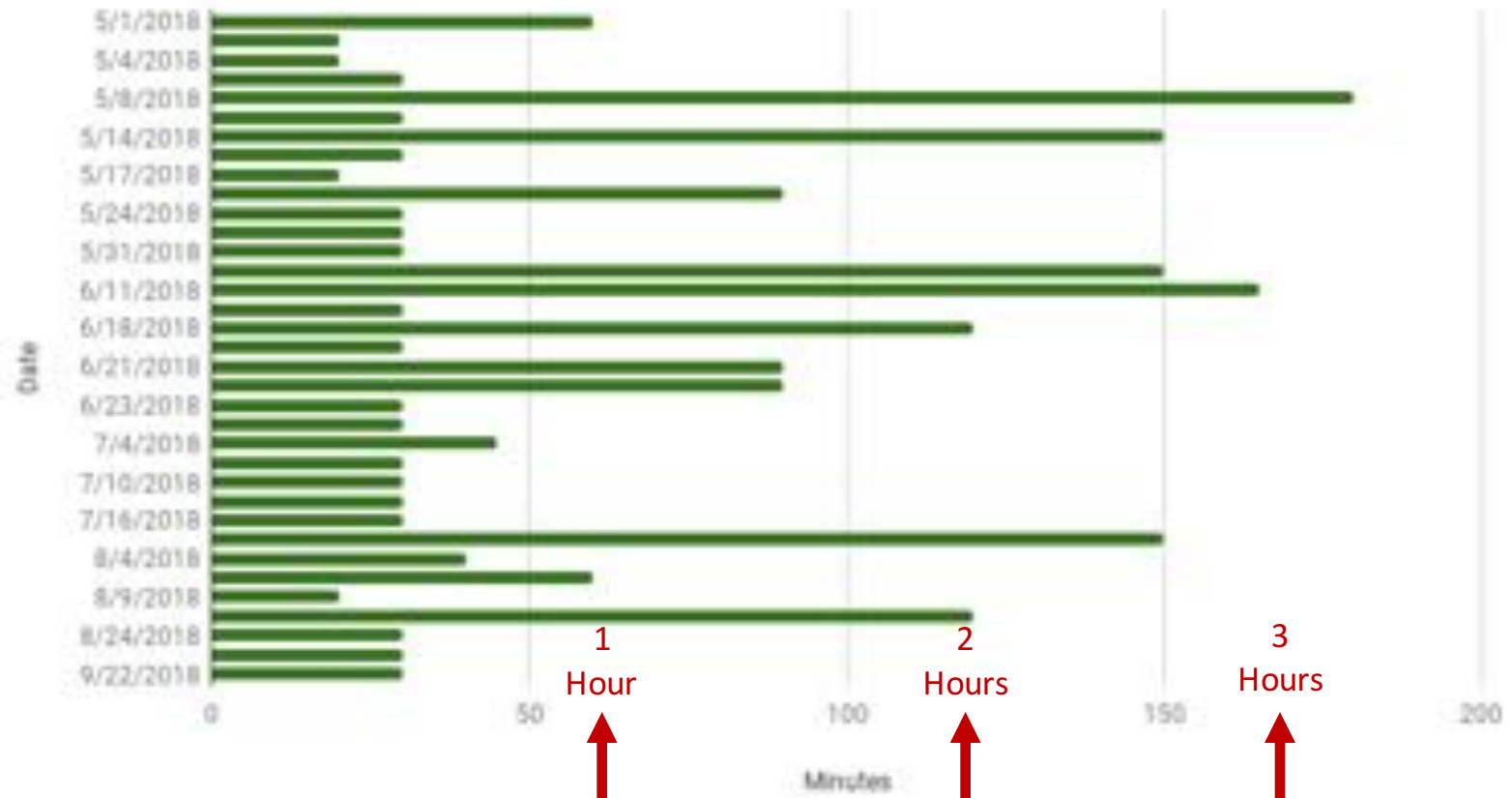


Research Results: Weed Management

- Average time spent weeding from May – October (35 individual days)
 - ~12 hours/month in May & June
 - ~5 hours/month in July & August
 - 30 minutes in September
 - 0 min in October



Time Spent Weeding



Managing a No-till Permanent Raised Bed System

- Without structure, soil can shift
 - You may need to rake up the sides of you beds every year to reshape
- You may need to add more hardwood chips to walkways every few years
- You may need to add more compost (as amendment) every few years
 - I suggest getting your soil tested to make informed decisions



No-till Permanent Raised Bed System: Challenges

- Upfront costs
 - Purchasing hardwood chips and compost
- Compost can have trash in it
- Potential for compaction
- Prime habitat for moles (can be bad) and voles (can be good)
 - Both aerate the soil



Have prime agricultural soil?



Alternative PRB System

Year 1

- Till area
- Smother with silage tarp
- Form beds with tiller
- Cover beds with 2-4 inches of weed seed-free compost
- Seed beds with cover crop for one year
- Cover walkways with hardwood chips

Year 2

- Prep beds and plant cash crops



















































