



**JERICHO
SETTLERS
FARM, Inc.**



*solar powered farm * organic vegetables
year round CSA * eggs, pork, beef, lamb*

Mechanical Harvesters

Why?

- Labor
- Speed
- Timeliness
- Crop quality

Mechanical Harvesters

Behind the Scenes: before harvest

- Incorporation of cover crops
- Soil test results
- Fertilize
- Bed prep
- Bed shape
- Weed control: flame and/or tine weed
- Seeding density
- Weed control roots – flame, basket weed, shovels, hand weed
- Irrigation

Mechanizing Harvest of Greens and Roots

Behind the Scenes: before harvest

1. Harvesters works best if you if you have a relatively weed-free, healthy crop
2. Practice No. 1
3. Harvesters decrease your handling and increase your profitability if you achieve No. 1
4. Harvesters force you to achieve No. 1

Beds fertilized, shaped and seeded



Mechanical harvest
Jericho Settlers Farm – Mark Fasching & Christa Alexander

Seeding of greens

for reliable and predictable stands:
new seed and reliable seeder



Mechanical harvest

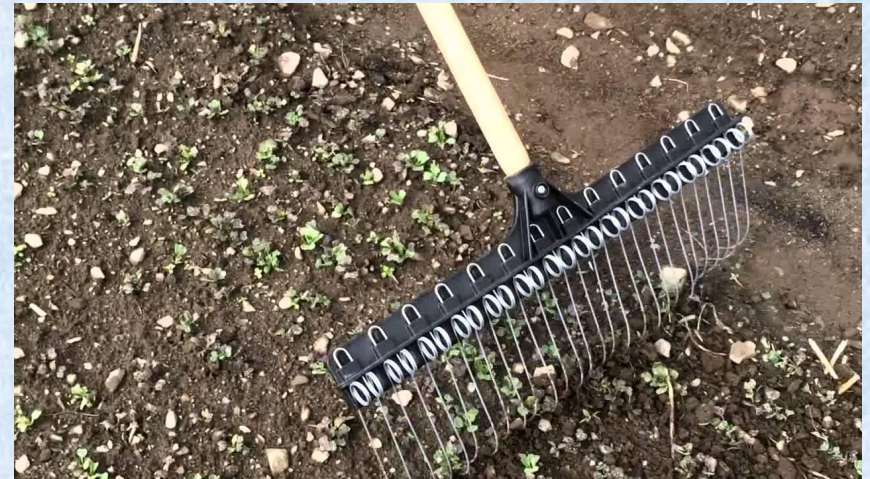
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Weed free greens

flame and/or tine weed



**Pre (flame)and Post (tine)
emergence**



Mechanical harvest

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Soil Steaming

current method



Weed free beds



The Greens Result

Field Greens



Tunnel Greens



Mechanical harvest

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Seeding of root crops: new seed and reliable seeder



Mechanical harvest

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Seeding of root crops:

seeding density key for size and yield



Twin to triple line row for carrots

Weed free roots

flame 2x and then tine/basket/Finger weed



Mechanical harvest

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Weed free roots: Hand Weeding



Mechanical harvest
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The Roots Result



Mechanical harvest
Jericho Settlers Farm – Mark Fasching & Christa Alexander

Mechanical Harvest

Greens



Roots



Mechanical harvest

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Why we made the jump to mechanical harvest of GREENS:

Hand Seeder and Hand Harvest



- Unpredictable stand quality and density
- many hands to harvest
- Labor intensive

Tractor mounted seeder and mechanical harvester



- Predictable and dense stand
- 1 person to harvest
- Major reduction in labor

Mechanical harvest

Jericho Settlers Farm – Mark Fasching & Christa Alexander

Entry level greens harvesting: Farmers Friend Greens harvester



Mechanical harvest
Jericho Settlers Farm – Mark Fasching & Christa Alexander

Bigger Investment: Walk behind or tractor mounted harvester



Terrateck
Andre at Heron Pond
Farm, NH

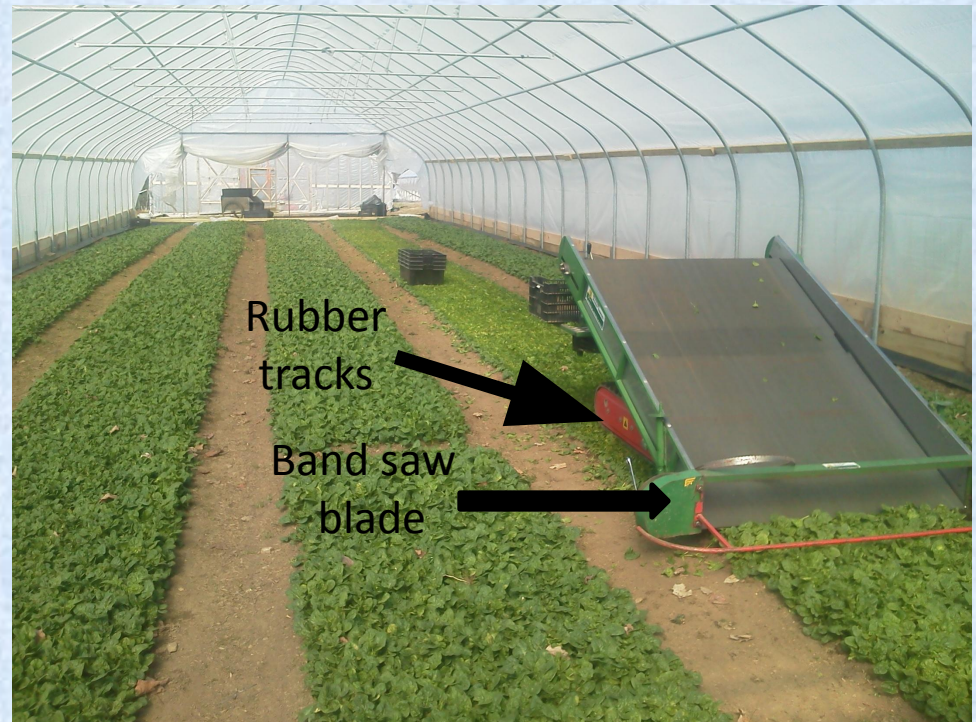


Ortomec – through Sutton Ag



Mechanical harvest
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Walk behind greens harvester



Greens Harvester: self propelled, bandsaw blade, cuts 4 foot bed top

- Bandsaw blade, rubber tracks, belt conveyor, hydraulic conveyor and blade motors
- 1 person can harvest 100ft bed of greens in under 10 minutes!



Mechanical harvest
Jericho Settlers Farm – Mark Fasching & Christa Alexander

Root crop harvest - Hand

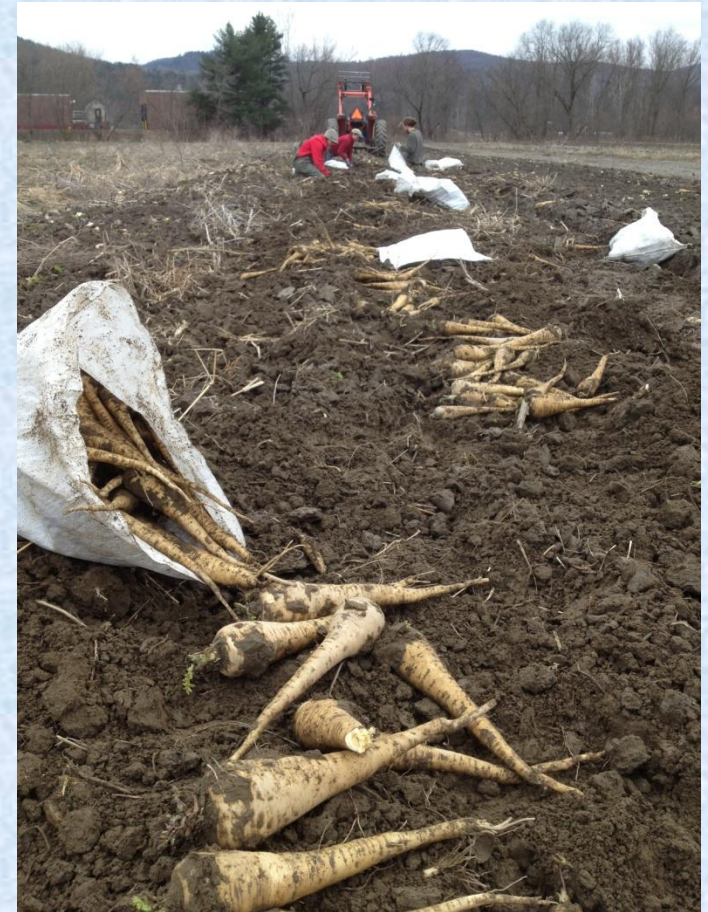


1. Bed lifter

2. Pull, pick, bag

3. Bags into bins

A lot of handling



Root crop harvest 2012-2021

- 1960s FMC Scott Viner harvester, mechanically harvests 1 row at a time
- Bed lifts, pulls, cuts tops and conveys to bin
- Used successfully on carrots, beets, watermelon radish, parsnip
- Huge labor saver! Can harvest upwards of 12 bins per day with 1 person



Mechanical harvest
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Root harvester parts



Guide cones to belt



Under cutting plow share
and pick up belt

Mechanical harvest

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Root harvester parts cont.



Knives to cut root tops,
conveyor belt below



Conveyor to bin

Mechanical harvest

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New Root harvester - 2022



Mechanical harvest
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Combination Model



Top Lifter



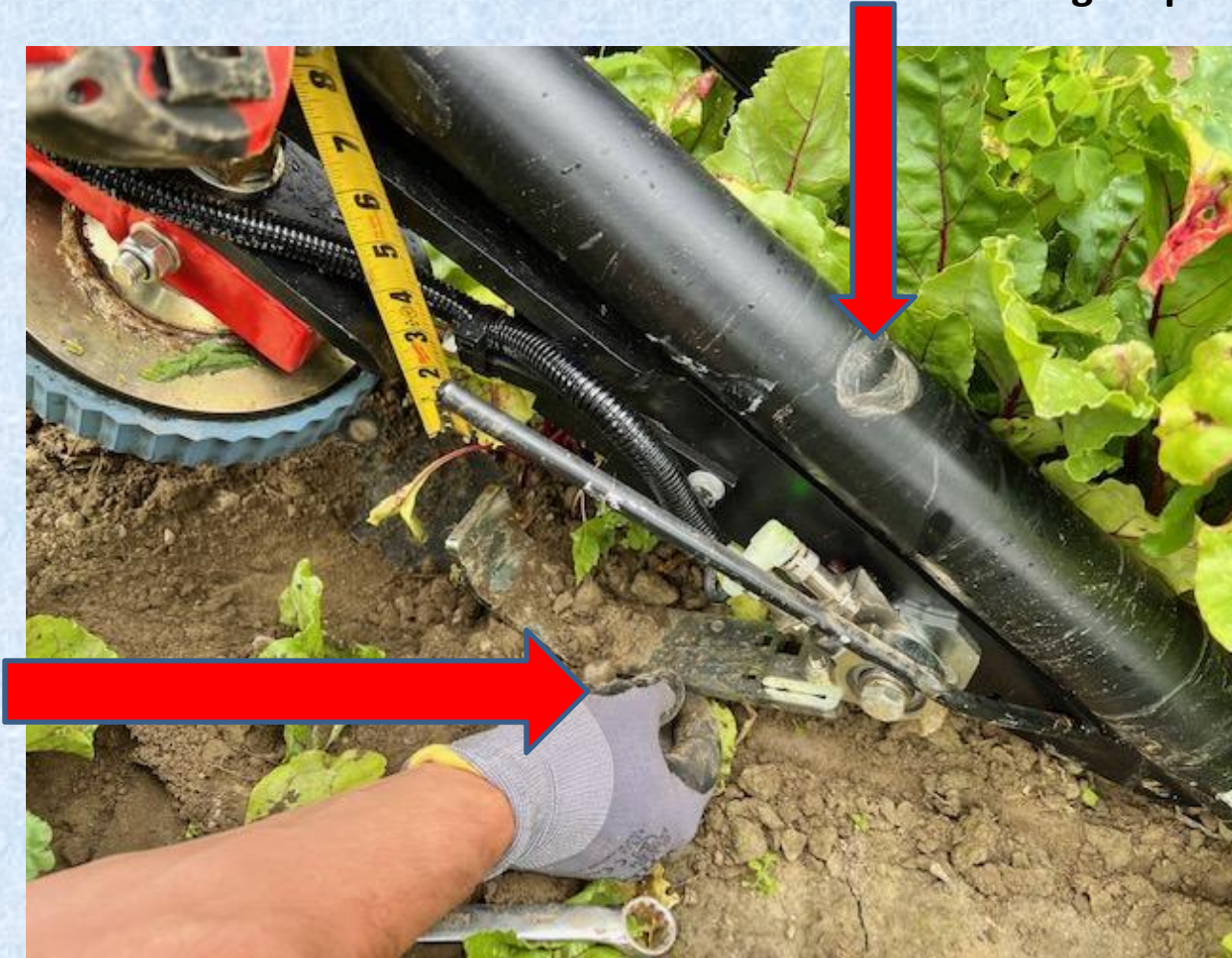
Share Lifter

Mechanical harvest
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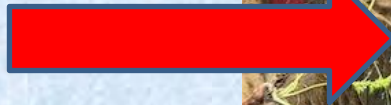
Top Lifter

Rotating Torpedoes

Auto
Depth
Control



Top Lifter



**Finger
Cleaners**



**Finger
Cleaners**





Mechanical harvest
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Cab controls



Platform controls



Raise Bin for loading



Lower bin to ground

Share Lifter



**Rotating
discs**

Plow Share

Share Lifter

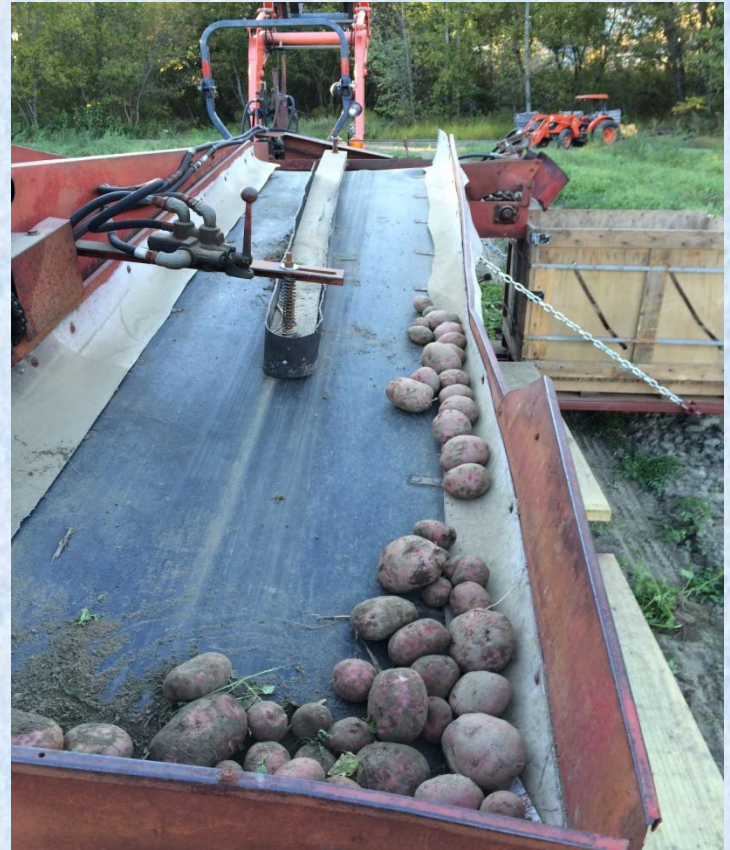


**Hedgehog belt to
remove dirt
coming off the
take up conveyor**

Potato harvest



Digger: Dig out and put on surface



Harvester: Dig out and put in Bin

Previous Potato harvester



One row harvester



Mechanical harvest

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New Potato harvester



One row harvester

Mechanical harvest

Jericho Settlers Farm – Mark Fasching & Christa Alexander

New Potato harvester



Mechanical harvest
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Also digs roots



Mechanical harvest
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Night Harvest



Mechanical harvest
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Mechanical Harvesting

Challenges:

- Lots of moving parts, things break, parts need to be ordered
- Increased level of safety while operating harvester
- Someone needs to be mechanical
- Crop diseases can render harvester obsolete
- Weedy crop will slow you down
- Need strong root tops for root harvester to pull up roots: carrot variety selection should take this into account

Mechanical Harvesting

Why we made the switch:

- Opportunity – upgraded seeder and acquired used greens harvester at same time
- Tired crew at end of season hand harvesting roots and lugging bags. Too much handling of product. Poor crew retention next season
- Root harvest and potato harvest is now a 2 person job for 17 acres
- Harvesting of roots and tubers allowed us to move to bin system
- Mechanical harvesters made our farm grow as we increased the acreage of crops that are harvested mechanically
- Profitability increased due to less labor required to harvest more product
- Better crew retention – they are excited to use harvesters and not burned out at end of season.

Thank

you



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