The NORTH FARM
Michigan State University

Innovative Equipment Investments on the Diversified Farm

Collin Thompson & Abbey Palmer
906-439-5058
www.msunorthfarm.org

Salad Spinner

Cost of Construction	$200
Commercial Equivalent (Electrolux Greens Machine)	$2,200
Time to Build	2 days
Time to Spin 100# greens with Spinner	30 min
Time to Spin 100# greens Manually* *reduced quality outcome	75 min
Tool Justification	High quality greens require adequate drying, post-washing, to ensure appropriate shelf life and safety for the consumer. Manual drying is time consuming, less effective, and labor intensive than mechanical spinning. Commercial salad spinners are cost prohibitive for many small farms, so washing machines are often a good substitute. By using removable barrels, hand loading of greens is reduced, increasing end quality of the product. Additionally, food-grade, sanitizable barrels minimize the risk of foodborne illness.

Germination Chamber

Cost of Construction	$250
Commercial Equivalent (Hummert)	$3,200
Time to Build	2 days
Capacity	70 flats – 8,960 starts
Tool Justification	Adequate heat and water must be applied at seeding to ensure uniform germination. Heat mats provide appropriate temperatures, but still require hand watering, often with cold water, which can lead to damping off. Germination chambers provide a warm, moist environment, reducing the likelihood of fungal issues and increasing the overall germination rate. Commercial germination chambers are costly, so farm built options can greatly increase the payback time for this valuable tool.

Bed Shaper

Cost of Construction	$300
Commercial Equivalent (Electrolux Greens Machine)	$1,990
Time to Build	1 day
Time to Shape 200’ with Bed Shaper	5 min
Time to Shape 200' Bed Manually (2 people)	35 min
Tool Justification	Uniform beds are essential if mechanical cultivation or harvest is to be used. Commercial bed shapers often rely on additional tillage steps to prepare the soil prior to bed shaping, requiring multiple passes with equipment. This design mounts to the back of a 6' rototiller, allowing final tillage and bed shaping to happen simultaneously, reducing the number of passes across a field. Additionally, the cost of materials and simplicity of assembly benefit the grower when compared to commercially available alternatives.

Barrel Washer

Cost of Construction	$550
Commercial Equivalent (Grindstone Farm)	$2,350
Time to Build	5 days
Time to Wash 1000# of Carrots with Washer	60 min
Time to Wash 1000# of Carrots Manually	180 min
Tool Justification	In order to profitably grow root crops, an efficient washing system must be in place. Batch washing large quantities of root crops can be economically accomplished using a barrel washer. However, commercially available models can be expensive for small growers. This design uses easy to source components and reduces the overall cost, shortening the payback period.

Bed Lifter/Root Digger

Cost of Construction	$220
Commercial Equivalent (Woodward Crossings)	$639
Time to Build	1 day
Time to Dig 200' of Carrots with Digger (3 people)	45 min
Time to Dig 200' of Carrots Manually (3 people)	100 min
Tool Justification	In order to profitably grow root crops, mechanical harvest systems likely need to be in place. While there are many options and scales for mechanical harvest, a simple piece of equipment is the bed lifter, or root digger. This tool can quickly loosen an entire bed of root crops, facilitating easy digging. While commercial options are not out of range for many growers, farm-built options can often save a grower money, while not losing any functionality.

Water Wheel Transplanter

Price Range for New Equipment *single bed, two row unit	$1,500-3,000
Time to Plant 200' of Head Lettuce with Planter (3 people)	20 min
Time to Plant 200' of Head Lettuce Manually (3 people)	35 min
Tool Justification	While a skilled individually can quickly and efficiently transplant crops, fatigue eventually slows even the best worker. Transplanters allow all workers to work quickly and efficiently with little effort, increasing daily output, as well as protecting workers' physical bodies.

Plastic Mulch Layer

Price Range for New Equipment *single bed with drip tape	$1,700-5000
Time to Lay 200' of Plastic Mulch with Layer (2 people)	10 min
Time to Lay 200' of Plastic Mulch Manually (2 people)	65 min
Tool Justification	Plastic mulch can reduce cultivation and irrigation, as well as manipulate soil temperatures. Plastic mulch layers effificently shape beds (raised bed units), lay drip tape, and lay plastic mulch with a single pass. Performing the same task manually requires substantial labor inputs and rarely results in a lesser quality end result.