Bed Making, Seeding, Transplanting

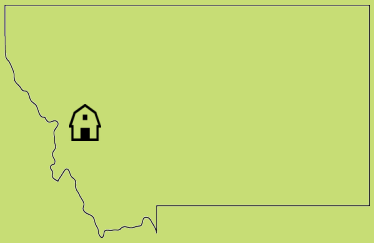
Field Tested is a series of reports about farm tools that have been tested by Montana farmers to enhance their specialty crop production. The reports describe these farmers' findings to help others make informed decisions about their specialty crop businesses. Visit FarmLinkMontana.org to read more Field Tested reports. This project is administered by the Community Food & Agriculture Coalition with funding from the Montana Department of Agriculture Specialty Crop Block Grant Program.

MISSOULA GRAIN AND VEGETABLE CO.

STEVENSVILLE

Max Smith
max@missoulagrainandvegetable.com
www.missoulagrainandvegetable.com

MISSOULA GRAIN & VEGETABLE CO. SNAPSHOT



Location: Stevensville, MT

Acres in Production: 15

Operators: Max Smith, Kenneth Meyers, Katelyn Madden

Crops: mixed vegetables and greens

INTRODUCTION

Max, Kenny, and Katelyn of Missoula Grain and Vegetable Company (MGVC) have been strategic about diversifying markets while building their farm business. They decided to scale up their operation to explore new markets, but needed to improve production efficiency in order to do so effectively. This meant purchasing equipment: a mulch layer and bed shaper, six-row seeder, and transplanter. The farmers of MGVC hope what they learned about this equipment will help others decide which equipment may be useful for similar operations looking to increase their production capacity.

Clamshell greens packaged for sale from Missoula Grain and Vegetable Company.

BUILDING MARKET EFFICIENCY

MGVC's primary sales outlets have been farmers markets and their CSA program. In 2016 they explored a new market opportunity: clamshell greens sold in grocery stores. They found success in Missoula and wanted to expand production to include other locations. After filling that market for awhile, they did not find that market line profitable enough due to the time required to pack the clamshells. Rather, their increased production capacity enabled them to move more product through farmers markets and their CSA program, which do not require the additional packing time of the clamshells.

MATERIALS PURCHASED

- Nolt's Mulch Layer, Model RB448 ($1548)
- Jang JP-6 Row Seeder, w/ Three-Point Hitch ($2183)
- Berry Hill Custom Transplanter ($1250)

TOTAL: ~$5,000

INVESTMENTS FOR PRODUCTION EFFICIENCY

Bed Shaping

Nolt's Mulch Layer

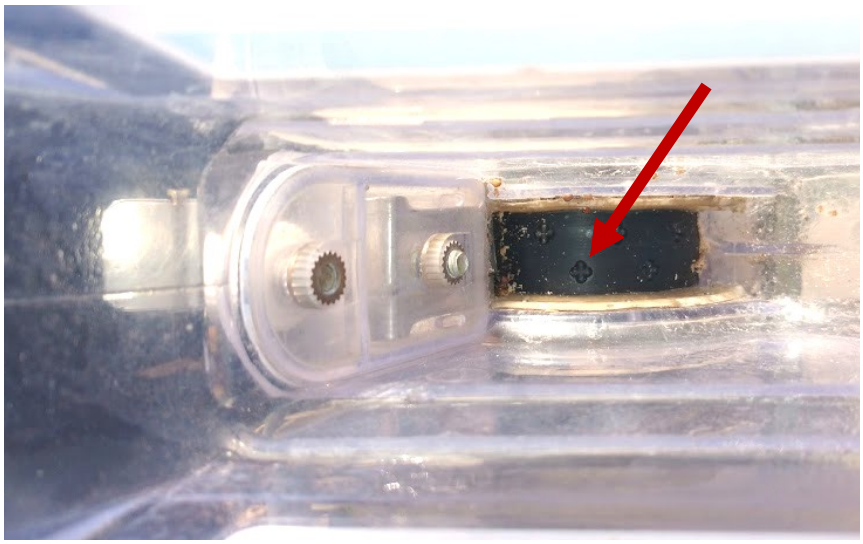
The Nolt's Mulch Layer creates raised beds and lays plastic mulch and drip irrigation all in one pass. MGVC doesn't use plastic mulch, but bought the mulch layer in order to form uniform seed beds to save time during planting and weeding and to improve germination. The farmers expected this would be an improvement over working without defined beds.

The Nolt's RB488 Mulch Layer ready to hitch to a tractor. The mulching wheels are removed.

Kenny Meyers used the Nolt's Mulch Layer for MGVC. He found that it took some adjusting to figure out the best way to use this piece of equipment for their operation, but it became very valuable. Here are his lessons learned:

- Ensuring the soil is free of plant debris before shaping helps prevent holes from dragging debris
- Weighting the bed shaper helped to create more uniform, compact beds
- Using a 4 WD tractor with 29 HP pulled the mulch layer well
- Taking the wheels off the bed shaper prevented ruining neighboring beds' edges (this is not possible if you are laying plastic since the wheels bury the plastic)
- Angling the mulch layer downward pulled more soil in when shaping beds
- Using the following process created the best conditions for bed shaping: Spading, waiting 10-14 days, watering 1.5-2hrs (if no precipitation falls), waiting 5 days, spading again with an increased depth (1-2"), then waiting 1-2 days for soil to dry before shaping.

The Jang Seeder with 5 hoppers



Interior of the hopper of a Jang Seeder with cross shaped holes for

Seeding

Jang JP-6 Row Seeder

Max chose the Jang JP-6 row seeder to replace his Earthway seeder because of claims about time and seed savings. He thinks the seeder wasted less seed because it plants at correct spacings, preventing waste due to thinning. It also buries seed to correct depths, preventing poor germination. An added benefit of accurately-placed seed is less time spent thinning seedlings, which can be a large expense for small farms, particularly at the height of the season when labor has to be focused. The seeder saved MGVC farmers time and allowed for mechanical weeding because the rows were more uniform and straighter.

TIP

Refilling the Jang planter takes about 3 minutes and changing hoppers and seed sizers takes longer. Max found it was more efficient to plant beds according to similar seed sizes. This decreased time spent changing out the hoppers. See the seeder working at the Farmlink youTube channel.

Beds after being seeded with the Jang seeder. They are straight and seed is well spaced.

Transplanting

Berry Hill Custom Transplanter

The Berry Hill Custom Transplanter is a mechanical transplanter with two seats for operators and two wheels for transplant rows. With this design, transplants must be watered separately after they are in the ground. Max chose the Berry Hill because it is less expensive than the commonly used Rain-flo Water Wheel Transplanter, which waters the transplants as they go into the ground. Max wasn't sure the time savings from not having to water would be worth the price difference between the implements.

The Berry Hill Transplanter

In the end, Max found that the Berry Hill saved them time and labor per bed foot while transplanting, although it would be better for their system if it had three or four wheels. For example, they ended up needing to hand plant two extra rows of onions on the outside of each bed. After using the Berry Hill transplanter for a season, Max would recommend splurging for the Rain-flo Water Wheel Transplanter if you can afford it. He believes the time savings of watering while transplanting would be worth it.

The two wheels of the transplanter

Results

Overall, Max estimates that the three purchases of the mulch layer, seeder, and transplanter allowed MGVC to double their production and sales, despite needing some experimentation to figure out the best way to use them for their operation.

The Nolt Mulch Layer RB488 allowed for defined walkways and less compaction in the field. The bed shaper left soil in good shape so that a second planting could easily be done by spading to level the beds. The Jang JP-6 Row Seeder improved plant spacing and saved time. In fact, the Jang seeder was almost 10 times faster than the Earthway when it was used on uniform beds and when seeding numerous beds with similarly sized seed. Finally, the Berry Hill Custom Transplanter was also useful, especially when used soon after bed shaping to reduce weed effects. The implement reduced the time to transplant by more than 13 times. Max does plan to add a third wheel and a water element to the transplanter to improve its efficiency even more next season. All in all, the farmers for MGVC are happy with their equipment investments.

TIME SAVINGS THROUGH IMPLEMENT IMPROVEMENT

New implements	Prior Method	Time Saved (Farmer Estimates)	Overall Recommendation
Nolt's RB488 mulch layer (creates bed, lays drip line, lays plastic mulch)	No raised bed, hand laying drip line, no plastic mulch	**5x Faster**	**YES:** Saves time early and later in season. (Note MGVC did not use the mulch layer function)
Jang JP-6 Row Seeder (hand driven)	Earthway Seeder (single row, hand driven)	**2—10x Faster**	**YES:** Max believes the seeder has helped at least **double production**
Berry Hill Custom Transplanter (two seat, two wheel, no irrigation)	Transplanting by hand	**14x Faster**	**NO:** Go for the Rain Flo if you can afford it, but Berry Hill is still better than nothing

ADDITIONAL RESOURCES

Montana Department of Agriculture Specialty Crop Block Grant Program: The purpose of this program is solely to enhance the competitiveness of specialty crops in Montana. Visit their website to find funding opportunities and more information. Search Montana SCBG.

Farm Link Montana: A project of the Community Food and Agriculture Coalition to connect Montana's beginning farmers and ranchers with the tools they need to succeed: farmlinkmontana.org

Field Tested Reports and Videos: Find more reports about other projects and see videos of tools in action at the Field Tested webpage, under Resources on FarmLinkMontana.org