

FIELD  
TESTED



# Seeding Equipment for Increased Efficiency and Produce Quality



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/fieldtested](https://FarmLinkMontana.org/fieldtested) 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.

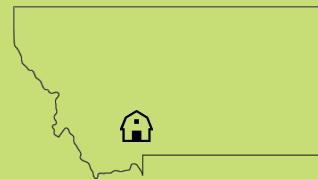
## AMALTHEIA | BELGRADE



Nathan Brown  
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### Amaltheia Snapshot

Location: Belgrade, MT  
Operator: Nathan Brown  
Acres: 3 acres  
Crops: Mixed Vegetables



## INTRODUCTION

In early 2020, Nathan Brown purchased two new mechanical seeders to help improve on-farm efficiency and overall crop quality. Nathan hopes that his trial of the new seeders will “help farmers make initial seeder purchases so that they can buy a seeder with confidence in order to grow great vegetables right out of the gate.” Nathan believes through increasing efficiency on the farm, farmers can afford to pay higher wages. Nathan also hopes that his new seeders will also improve his crop quality and



Nathan in front of arugula and lettuce mix beds that were seeded with his new Six Row Jang Seeder.

therefore, “provide more uniform crops so that customers are happy and know what to expect from us”.

## AMALTHEIA

Amaltheia Organic Dairy is a sustainable, organic company that has been handcrafting organic goat cheeses for 20 years. Mel & Sue Brown started Amaltheia Dairy in 2000. In an effort to become a completely sustainable farm, they began turning the goat’s manure into compost and using the whey from the cheese to feed their pigs. Coming full circle, in 2010 Nathan Brown (son of Mel and Sue) started a vegetable farm as part of the Amaltheia Organic Dairy operation. Nathan currently grows vegetables on three acres of leased ground. He grows a variety of crops, including: salad greens, kale, arugula, roots crops, squash, and more. Nathan sells produce at four area farmers markets, grocery stores, and a food distributor.

### Equipment Purchased

- Six Row Jang Seeder - \$1850
- Three Row AP-TB Seeders - \$2142
- 21 Seed Rollers - \$420

## SIX ROW JANG SEEDER

Nathan chose a Six Row Jang Seeder to help reduce seeding time and weeding time, and improve the overall quality of his greens. Before purchasing the Six Row Jang Seeder, Nathan was using a single-row EarthWay seeder.

### Seed Amounts and Seeding Time

With the Jang Seeder Nathan found that his overall quantity of seed amounts laid per bed went down. Because the Jang Seeder drops seeds with more precise spacing than his previously used EarthWay Seeder, Nathan has decreased his arugula seed needs by 50% and lettuce seed by 10-20%. In addition to reducing seed costs, Nathan also found that the Jang Seeder reduced seeding time drastically. While using a single row EarthWay Seeder, it would often take one person two hours to seed one 250 ft bed. Now it takes one person just 45 minutes to seed a 250 ft bed. Additionally, with the EarthWay Seeder, Nathan or his crew would need to do 12 passes per bed, they can now do it in just two passes with the Six Row Jang Seeder.



Six Row Jang Seeder

## Quality and Uniformity



Nathan found that due to more precise seeding, the quality of some of his produce has improved. While before he struggled with leaf discoloration and spotting in his densely seeded arugula, the new Jang Seeder spaces seed much more evenly, creating better airflow. The seeder also creates a flat bed top, making harvesting with a mechanical salad greens harvester much easier and producing more uniform cut leaves.

## Weeding

Additionally, with the Jang Seeder, Nathan has found that weeding is a much faster process due to the straight lines and even spacing the seeder provides. Before, when his team used EarthWay seeders, it would take four people hand weeding at low weed pressure one hour to weed a 250 ft bed. Now using a wire weeder hoe, one person can weed a 250 ft bed in one hour.

## THREE ROW AP-TB SEEDER



Three Row AP-TB Seeder

Nathan purchased the Three Row AP-TB Seeder in hopes of improving seeding efficiency and quality of the many root crops he grows. He bought the seeder so he could attach it using a tool bar to his Allis-Chalmers G Tractor, making it possible to plant all three rows at once. He uses the seeder to seed radishes, turnips, beets, carrots, and parsnips.

## Seed Amounts and Seeding Time

Overall, Nathan has seen a decrease in the amount of seeds needed per bed due to using the Three Row AP-TB Seeder. He did have a hard time using it with beet seeds, as their shape and size cause them to get clogged in the seeder. But the rest of his root crops all seem to have improved germination rates and seed spacing thanks to the new seeder. For example, Nathan can now seed carrots three times as fast compared to the EarthWay. Before Nathan and his team would have to seed each row with a single row EarthWay, now he can plant the whole bed in a single go.

## Quality and Uniformity

Nathan found that the AP-TB Seeder has greatly improved the evenness of carrot germination and carrots are more uniform due to consistent seeding. Nathan mentioned that consistent sizing is something his customers have wanted for a long time, and he is happy he can deliver that now. Before using the AP-TB Seeder, he was getting much different root sizes due to more sporadic seeding and germination. In addition in providing great uniformity for carrots, it has also produced perfectly sized radishes and turnips.



Nathan shows the uniformity of his carrots after using the AP-TB Seeder for seeding.

## IMPACT OF EFFICIENT SEEDERS

Nathan overall has had great success with his two new seeders and would recommend them for farmers looking to increase efficiency in their direct seeding processes. While the equipment is fairly more expensive than a single row EarthWay, he said it has been well worth the investment. The one thing that Nathan would like to improve on his AP-TB Seeder is buying some double disc openers to cut through the soil instead of pushing through the soil. That's what grain farmers use a lot of the time in no till situations and he believes it would help his AP-TB seeder.



## Seed Amount and Seeding Time

Old Method: One Row  
EarthWay



12 Rows



250 Ft Bed

2 lb of Arugula  
Seed

Planting Time:  
2 hours

New Method: Six Row Jang  
Seeder



12 Rows



250 Ft Bed

1 lb of Arugula  
Seed

Planting Time:  
45 minutes

## Additional Resources

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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](#).

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](#)

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](http://farmlinkmontana.org)