Strawberry Production in Low Tunnels

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 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.

FRESH ROOTS FARM | POLSON

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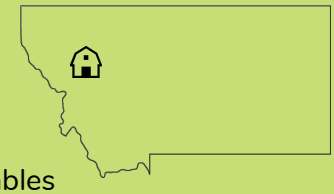
Fresh Roots Farm Snapshot

Location: Polson, MT
Operator: Karl Sutton and Darci Jones
Acres: 6 acres
Crops: Organic mix vegetables and fruit, vegetable seed, and popsicles



INTRODUCTION

In spring 2020 Karl Sutton purchased eight low tunnels to use for strawberry production on his farm. Since Montana has such a short growing season, Karl hoped the new infrastructure would help improve his overall yield and quality of his strawberries. He covered 50% of his strawberries in low tunnels and measured the yield from the low tunnels and non-low tunnel plantings. Karl hopes that if the low tunnel system turns out to be efficient and resilient in Montana weather events it could be one more tool for Montana specialty farmers looking to extend their season; whether the crop is strawberries or other low growing crops.

FRESH ROOTS FARM

Fresh Roots Farm is a certified organic specialty crop farm in Polson, MT owned and operated by Karl Sutton and Darci Jones. Fresh Roots Farm initially began as a highly diversified produce farm that sold at Polson Farmers Market and through Western Montana Growers Cooperative. As the farm has matured, their crop diversification has decreased as they have become more focused on niche enterprises that they do exceptionally well based upon their climate, isolation from other growers, farm location, soil types, and needs in the marketplace. In 2020 their enterprise makeup will include contract growing of certified organic vegetable and flower seeds, value added popsicles and syrups using fruits, herbs and vegetables from their farm and other area organic farms, and direct market sales of strawberries, raspberries, and greens at two farmers markets.

GROWING STRAWBERRIES IN MONTANA

One of Fresh Roots Farm's staple crops is strawberries. Along with selling them to the Western Montana Growers Coop, they also use the seconds to make delicious popsicles, for their Flare Pop popsicle business. However, growing beautiful, damage free, organic strawberries in Montana is not an easy task. Strawberries require warm weather without excessive rain, which only adds up to a few months out of the year in Montana. In past years, Karl and his crew have dealt with cool, wet springs and early fall rains that threaten to reduce their strawberry crop yields.

In search of new solutions, Karl found research that showed using retractable low tunnels in strawberry production can help insulate strawberries from cool temperatures and also decrease the damage caused by seasonal rains and diseases.

IMPACTS OF RETRACTABLE LOW TUNNELS

During the 2020 season, Karl kept track of how the low tunnels were impacting his strawberry crop in several ways: overall yield, labor costs, and pest/disease pressure. Because he planted about half his crop outside of the low tunnels and half under the low tunnels, he was able to track the difference between the two.

Growth of plants and disease pressure

One goal for the new low tunnels was that they would help with disease pressure on the strawberries. While they haven't had the low tunnels for a full season yet, Karl said he can already see a difference in the disease pressure on the plants under the low tunnels. His strawberry plants usually get hit with Common Leaf Spot every season, and the only way to combat it is to pick off all the infected leaves. He has noticed this season that the leaves under the low tunnels have significant less Common Leaf Spot, as they are not exposed to the same early season precipitation like the plants not under tunnels. Karl has noticed while they get about the same number of berries per plant with the tunnels, the total amount of marketable berries (i.e. without significant damage) is higher for plants under the tunnels.

Equipment Purchased

- 9 - 100 ft Retractable Low Tunnels - $3,456

Labor Costs

Karl and his team also tracked labor costs associated with the tunnels throughout the growing season. During part of the season the tunnels need to be opened when it is warm and closed when it is cool. The tunnels also need to be set up and taken down each season, which adds additional labor costs. It took two people 40 minutes to set up each 100 ft tunnel the first spring, and he imagines it will be quicker next season, as they have a better idea how to set them up now.

Managing the tunnels during the season is time consuming. To open and/or close the tunnel is about 7 minutes per 100' tunnel, longer if it is windy. If you are opening and closing the tunnel regularly this time would be a significant investment. Currently, Karl only opens and closes them if it is hot, raining, or frost is coming.

However, Karl noted in connection with reduced Common Leaf Spot, they have spent less time pulling off damaged leafs, therefore saving some labor costs. Additionally before the low tunnels, Karl and his team spent a lot of time picking out damaged strawberries from the rows, so they would not cause other strawberries near by to become damaged as well. Time spent picking damaged strawberries is significantly less when the strawberries are protected from early season rains.

Harvest Yields

One of the big impacts that Karl was hoping the tunnels would have is improvement in yields. Since the tunnels make it easier to get the strawberries out in the field sooner and they can stay out longer, Karl hoped his overall crop yields would improve. When compared to his yields in 2019, Karl has noticed this year that his yields are about the same. He thinks this is due to several factors. First, it was a hot summer, therefore reducing the need for the tunnels. He also had issues with sun scald in the tunnels due to the hot weather. Karl believes that if the season is wetter or cooler as it has been the past few years he would most likely find significant differences between strawberries grown inside the tunnels vs. those grown outside the tunnels.

Additionally, Karl found that the tunnels did help during an early season frost this September, when it dipped to 29 degrees. The strawberries outside of the tunnels perished, but the strawberries under the tunnels survived. That alone seems worth it for Karl, since it looks like they will have another additional three weeks of strawberry harvest.

RETRACTABLE LOW TUNNELS

Tunnels need to be opened and closed depending on weather and temperatures, which can take a considerable amount of time.

The tunnels can protect strawberries during early and late season frosts and rains.

During very hot temperatures strawberries can suffer from sun scald under the tunnels and yields are about the same when compared to strawberries grown outside the tunnels.

The tunnels can help protect plants from diseases during wetter, cooler temperatures.

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.

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