

PEKAREK'S PRODUCE FINAL PERFORMANCE REPORT

Project Title

Extending the Growing Season for Nebraska Specialty Crop Growers

Project Summary

Nebraska's fertile Typic Argiustolls soils that expand across Nebraska's 77,358 square miles play a large role in the state's agricultural success. It has enabled fruit and vegetable growers with the ability to respond to the rising consumer demand for locally grown produce in recent years. But, despite the state's agricultural success, its growing season has its limitations. Growing days range as long as 165 days in the southeast to 120 days in the northwest with killing frosts ranging from October to April and September to May, respectively. Since Nebraska's humid continental and semi-arid climates do not provide fruit and vegetable growers with the luxury of multiple growing seasons within a single calendar year, growers are constantly exploring new avenues with which to extend their seasons to increase crop productivity.

It's no secret that season extension practices, especially plastic mulches and high tunnels, are becoming extremely popular nationwide as more gardeners see them as essential, practical methods to extending the growing season and increasing crop productivity. These methods produce earlier crops in the spring and maintain consistent production well into the fall, thus, increasing the income and profitability of local gardeners.

In an effort to address this need, the U.S. Department of Agriculture (USDA) provided a grant to the Nebraska Department of Agriculture (NDA) to administer a project that was designed to provide small, competitive grants, in the amounts of up to \$4,600, to a limited number of Nebraska specialty crop growers for the sole purpose of extending the growing season for specialty crops.

Pekarek's Produce was one of the grant sub-recipient's in 2013 who used Specialty Crop Block Grant Program (SCBGP) funding to try three different kinds of mulches on their cantaloupe varieties to evaluate their effectiveness. The trials were also performed to make a comparison with cantaloupe grown on bare soil with no mulch (Control Group) against the produce grown on mulch. The mulch varieties used included black plastic, biodegradable, and fabric mulch. Mulch has several benefits. It allows for earlier crop production, suppresses weed growth, reduces soil and water loss, increases soil temperatures, and improves vegetable yield. For the mulches to be most effective, it is important that it be in contact with the soil to reduce any air pockets, which act as insulation that reduces heat transfer. This report is a description of Pekarek's Produce mulch study and how it will extend the season for Nebraska specialty crops. A primary goal of this project is to increase the season extension knowledge base among specialty crop producers and to encourage growers to consider adopting similar production methods to into their own operations.

Project Approach and Goals and Outcomes Achieved

Pekarek's Produce is a family owned and operated vegetable production operation that began in 2004. The produce is grown near Dwight, Nebraska, where they raise over 50 varieties of crops on approximately 13 acres. Their produce is sold at the Lincoln Haymarket and Seward Farmers' Markets. They also have a Community Supported Agriculture (CSA) operation.

Topographically, Dwight is located in an area of the state identified as the "plains" region. The plains consist of flat-lying land that lies above a valley. The materials of the plains are sandstone or stream-deposited silt, clay, sand, and gravel overlain by wind-deposited silt (loess).

Pekarek's Produce applied for grant funds to apply mulch on their cantaloupe crop. Mulches have been used commercially on vegetables since the early 1960s to help growers in extreme northern and high-altitude climates harvest heat-loving crops that were previously impossible to grow. The use of this technique is gaining popularity, especially with black plastic mulch, which is the most commonly used mulch. However, the comparison of black plastic versus black biodegradable versus black fabric versus no mulch has not been tested on Nebraska farms, to evaluate their differences and if any technique extends the season, reaps higher yields, and increases produce quality. Therefore, based upon NDA's suggestion, Pekarek's agreed to give the various mulches a trial run in the 2013 and 2014 growing seasons.

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1. Black plastic mulch is most commonly used. Soil temperatures under black plastic mulch during the day are generally 5 degrees higher at a depth of 2 inches and 3 degrees higher at a depth of 4 inches compared with bare soil. At the end of the season, the mulch must be removed from the field and disposed of.
2. Black fabric mulches are very durable and can last multiple growing seasons. They are generally porous in nature, which allows water, fertilizer, oxygen, and other gases to enter and exit. This mulch must be removed at the end of harvest, if drip tape is beneath the mulch. However, it can be laid down again the following year. Eventually, this mulch too must be removed and disposed of.

3. Biodegradable mulches are made with starches from plants, such as corn, wheat, and potatoes. They are broken down by microbes. Biodegradable plastics on the market are more expensive than traditional plastics, but their price is countered by their true environmental cost. It was discovered that biodegradable mulch performed similar to the other two mulches. However, unlike the other two, it can be either removed or plowed into the ground after harvest.

Drip tape was first buried in the soil an inch or two prior to mulch installation. Once mulch had been laid down, using the proper equipment, slits were cut or burned into the mulch to insert the cantaloupe seeds. Burning holes into the mulch prevents the mulch from fraying and unraveling.

A follow-up visit by NDA and the UNL professor was made on September 4, 2013, to assess the first year's results of the project. The entire yield results were extremely positive. Plants grown under the mulch performed much better than the Control Group. The grower experienced earlier crop production, less weeds, warmer soil temperatures, and better vegetable yields. One noticeable disadvantage was that many melons laying on the mulch had some black mulch residue that should be wiped away for cosmetic purposes. These same trials were again performed in 2014, so the grower was able to address the benefits, challenges, opportunities, and disadvantages to those who attended the farm tour on August 10, 2014.

Beneficiaries

Longer seasons result in larger annual incomes, customer retention, higher yields, and premium prices. Additionally, it can provide extended employment for skilled workers on produce farms who might otherwise be lost to other jobs at the end of the growing season.

The farm tour was held near Dwight , Nebraska, on August 10th. NDA worked with the grower to publicize this event. NDA sent 512 postcards to growers in 55 Nebraska counties. The announcement was posted on the Nebraska Our Best to You website, and the postcard was sent via e-mail to 438 growers on August 4th. Additional postcards were sent to the grower for additional promotion. Growers were asked to RSVP to NDA by August 8th. A total of 22 RSVPs were received prior to the event, and 29 attended.

Lessons Learned

A total of 29 attended the farm tour. This tour, similar to the others, were surprisingly very well attended.

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Additional Information

For more details regarding this project and the tours, please visit the Nebraska Our Best to You YouTube Channel at http://www.youtube.com/channel/UCUfhUcNUldN4_hf6attsvww.

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