

2013 PROGRESS REPORT
North Central Region
Sustainable Agriculture Research and Education (SARE) Program

Project Title: Exploring Edible Cactus Production as a New Specialty Crop in the Midwest

Project Number: FNC13-906

Producer/Project Leader: Alicia Ellingsworth

Address: 4223 Gibbs Road
City, State Zip Code: Kansas City, KS 66106

Phone: (913) 831-2444

E-mail: alicia@cultivatekc.org

Website: www.cultivatekc.org

WORK ACTIVITIES

According to plan, we visited with regional expert, Kelly Grummons, of Timberline Nursery in Arvada, Colorado. We gathered much information and learned his growing methods and plans for further experimentation. From Mr. Grummons' recommendations we gathered three pad specimens: *Opuntia ficus-indica* because of its large pads and upright growth patterns; *Opuntia compressa* for its native region of cooler and more humid eastern North America; and finally, *Opuntia gilvescens* Oklahoma Pancake for its high production and yellow fruit. [Editor's Note: Common names for these cacti include nopales, prickly-pear, and paddle cactus.]

Upon returning to Kansas City, we hardened-off the pads in greenhouse shade at Gibbs Road Farm. After a month, we placed the pads onto flats of Gibbs Road Farm soil mix. (See Photo 1) The pads in flats were distributed to the other two farms, Juniper Gardens Training Farm, and Nopalitos Urban Farm.

From there, each farmer is caring for the nopales according to Mr. Grummons' recommendations. We maintained telephone contact with each other, photographed progress, and recorded monthly changes.

RESULTS

From the start, the *O. ficus-indica* performed very well putting on new pads and some fruit by July 2013. (See Photo 2) Growth of these pads continued through the summer and fall. Each original pad produced approximately five new pads. (See Photo 3) The *O. compressa* showed little change throughout this time period. The OK Pancake produced more slowly with some pads putting on fruit and some pads producing second generation pads.

In August, at Gibbs Road Farm, the pads were transplanted into pots of soil mix, compost, wood chips and pea gravel in equal amounts. (See Photo 4) The pads were transplanted from the transition flats to in-ground plots at Juniper Gardens and Nopalitos Farm. At Juniper Gardens half the pads were planted in a high tunnel, and half in a field plot. At Nopalitos all were planted in a high tunnel. At Nopalitos some pads that had not rooted in the transition flats were planted upright. Watering continued. Growth continued.

We stopped watering the nopales in October according to Mr. Grummons' recommendation. *O. ficus-indica* continued to grow putting on more pads. Some of the pads grew to ten inches in length. Some second generation pads began to produce new pads. (See Photo 5)

The original pads continued to look healthy through cooler temperatures in October, November, and December. The low temperature for those months inside the unheated greenhouse was 9 degrees in late December. Low tunnels were installed at Juniper Gardens for the field plot and in the high tunnel. Nopalitos were left as is in the high tunnel. At Juniper, we believe condensation in the double tunnel due to humidity and fluctuation of the temperatures over the course of the winter affected overall plant health. The same degradation of *O. ficus-indica* was observed to a greater extent.

In January at Gibbs Farm, the temperature dropped to a sustained 9 degrees for approximately two weeks. Heat was turned on inside the greenhouse in mid-January and humidity increased. No watering was done. The *O. ficus-indica* began showing signs of decay. No change was noticed in the *O. compressa* and OK Pancake. No growth occurred during this time.

During February, the greenhouse at Gibbs Farm was kept at a nighttime temperature of 40 degrees. *O. ficus-indica* continued to decay, no change in *O. Compressa* and OK Pancake. In March, the nighttime temperature was maintained at 50 degrees. No change in pads in the greenhouse. Pads at Nopalito in the high tunnel and at Juniper in the field plot remained dormant until March. *O. compressa* and *O. gilvescens* showed signs of greening in February at Juniper in the double tunnel.

At Gibbs Farm, watering the pads began again in April. Before watering, *O.compressa* started to put on pads. OK Pancake followed with pads. *O. ficus-indica* continued to decay. Interesting enough, the *O. ficus-indica* that were not transplanted into pots decayed less quickly than ones that were in the pot and soil mix. At Juniper the low tunnel covers were removed in March. It was observed that *O. ficus-indica* was a 100% crop failure.

In summary, we learned much from the Nopales project last year. One we were a bit optimistic that we could get new and unfamiliar plant materials established on 3 farms in time to harvest and do the tastings and market testing we set out to do. Because of soil amending and the "new crop" learning curve, we got a late start getting the plants established at each of the farms. Learning from the first season and having already established plant material we will be able to be more aggressive with the other parts of the project in 2014. We expect to have a healthy harvest in 2014 to fully test the market.

WORK PLAN FOR 2014

Our goal is to accomplish all of the tasks set forth in 2013 that we did not complete during 2014. And to have even more accurate data we will be requesting to extend our grant through December of 2015. This gives the project two full growing seasons to fully test the varieties and educate, test, and grow the market. We would like to shift the first year expenditures in the marketing categories to the current year, 2014. There are some design tweaks we would like to make to the low tunnels to make it easier to access the plants for maintenance and monitoring during the winter.

Gibbs Road Farm

Learning from our first year, we plan to change two things:

1. We will harvest all new growth of pads and fruit in May for sale to local restaurants.
2. We will harvest the new generation *O. ficus-indica* pads in mid-October and store them in a dry, dark, cool place to be used as new 'mother' plants in 2015. In this way, the *O. ficus-indica* will be treated as an annual that produces once and produces its start for the next year.

Juniper

1. Adjust low tunnel design to allow for easier venting in the low tunnel to lessen humidity build up.
2. Same adjustments as Gibbs.

Nopalitos

1. Plant the pad on end rather than flat on the ground. Establishing the transplanted pads was faster when planted this way at this site. Another detail to observe.
2. Same Adjustments as Gibbs.

OUTREACH

We shared the nopales project with visitors who came through the farm on the Urban Grown Farm Tour 2013 (attendance at Gibbs Road 200 people), visitors throughout the year to the farm (approximately 1500) and through Facebook site: Nopales Kansas City. Juniper training farm hosts tours and has 17 farmers in training on site who are able to observe and learn as the project progresses.

Depending on harvest, Gibbs Farm hopes to take nopales to the Brookside Farmers Market this year or next, to provide recipes from local chefs and to do a tasting event to close the grant. The Nopales project is part of the apprenticeship program at Gibbs Road Farm. The Growing Growers apprentices participate in the growing and care of the plants. Juniper will be experimenting with marketing to their CSA customers and at the Kansas City Green Market where the farmers in training sell their produce. Nopalito is planning on focusing on developing the local ethnic market emphasizing the benefits of having a local source for nopales (edible cactus), a staple in the community's diet.

Recipes and other resource information is being researched and developed to support the marketing outreach. Recipes and one-to-one conversations at markets and with chefs and other customers are effective ways to give consumers confidence to try a new and fresher product. We will also be reporting our findings and progress in the Cultivate KC newsletter.



Photo 1



Photo 2



Photo 3



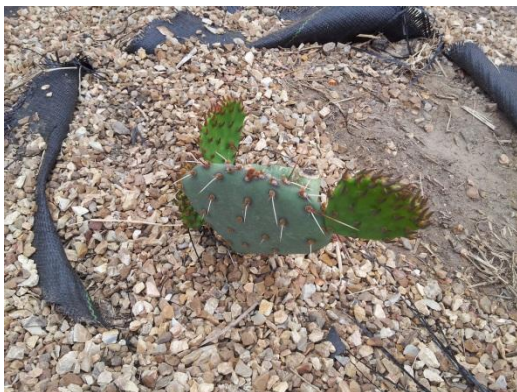
Photo 4



Photo 5



Juniper High Tunnel



Juniper Ground Plot