



The Four Corners Potato Gazette

Updating Our Partners on Recent Advances

Successful Workshop Held!

Seven indigenous farmers of Pueblo and Diné journeyed to Red Butte Garden during April 26-28 to



Farmers (1 to r): Jasmine Felipe, William Edwards, Dale Toya, Frances Sheppard, Britt Tallis, Elouise Wilson and Lucretia Holiday, joined by Cynthia Wilson, Traditional Foods Program Director with Utah Diné Bikéyah. Photo by NHMU/BJ Nicholls.

exchange information on the culture, biology, archaeology and cultivation of the Four Corners Potato.

By combining traditional and western approaches, the farmers

enthusiastically spoke of returning this potato to the people of the region, with cultural, spiritual, health and economic benefits. We discussed problems with existing methods of cultivation, explored new technologies and came to appreciate the full potential of this native species. The day ended by potting-up growing young plants that everyone took home for further observation and celebration.



Experimental troughs for cultivating Four Corners Potato on a large scale at Red Butte Garden. Photo by NHMU/BJ Nicholls.

Low Glycoalkaloid (Bitterness) Sources Discovered!

All potato species produce bitter compounds in their foliage and tubers, including the white potato found in supermarkets. Ensuring the least amount ends up in our cultivated Four Corners Potatoes, we have partnered with Professor of Pharmacy Dr. David Kinder to assay 15 different source populations. Dr. Kinder found that the range of total glycoalkaloid (bitter) content was 0.1 to 14.2 mg/2.5 g dry weight, with several southern Utah – western Colorado populations below 0.3. This means we can select those low glycoalkaloid tuber sources for cultivation in 2019, ensuring a better tasting product.

New Nutrition Data Commissioned!

We have sent five samples of Four Corners Potato off to an accredited nutritional analysis laboratory, along with a sample of store-bought, organic white potatoes for comparison. The lab will measure standard food labeling assays (e.g. for protein, carbohydrate, fat, caloric content, etc.), as well as tests for 50 minerals and 5 vitamins. These assays are part of a Food and Drug Administration compliance panel for the purpose of meeting food safety and labeling requirements. Previously obtained nutritional data for the Four Corners Potato was very promising, indicating the species has twice the protein, zinc and manganese and three times the calcium and iron content than the domesticated white potato.

Four Corners Potato Served at Friends of Cedar Mesa Dinner!

Over 200 Friends of Cedar Mesa enjoyed the Four Corners Potato at an event hosted by Twins Rocks Café in March. Chef Frances Stappen created a “Four Corners Salad” by first blanching the spuds, then adorning them with wild greens, local berries, pumpkin seeds, goat cheese and an agave-balsamic vinaigrette.



Frances writes: “That Potato. It was truly awesome to help our guests make the time, culture and food leap with those potatoes. One of their lectures involved indigenous agriculture and

farming ways, and an hour later there where those potatoes! As a chef it was a magic moment. I love the texture and flavor they lent the salad; and by serving them as the centerpiece of that salad, everyone got to taste a few and have a sense of how many you would have to harvest for a modern-day portion. Lots of our guests wanted to know more about the cultivation, etc. I asked if they would be willing to pay an up charge in the restaurant should we be able to get potatoes in season. The answer? yes!”



Photo by NHMU/BJ Nicholls.



The flower and foliage of the Four Corners potato (*Solanum jamesii*). Photo by Lisbeth Louderback.



The Twin Rocks Café in Bluff has already served the Four Corners potato! Photo by Janelli F. Miller (Four Corners Free Press).

Questions? Please write Bruce Pavlik (bruce.pavlik@redbutte.utah.edu) or Lisbeth Louderback (lisbeth.louderback@anthro.utah.edu)



The Four Corners Potato Gazette

Updating Our Partners on Recent Advances

Experimental Troughs Brimming!

The effort to upscale production of the Four Corners Potato appears to be working, judging by the thick, lush growth and abundant floral display in all ten experimental troughs.



Tuber sprouting a shoot and roots. Trough containing only 4 plants on each side of the partition, July 31, 2019. Caging protects against herbivores.

Escalante, Bears Ears and Mesa Verde populations were brought out of dormancy. The “eyes” began sprouting new shoots, which then led to new roots. These were transferred to four-inch pots containing the same soil used in the troughs and tended in the greenhouse at Red Butte Garden. Transfer to the troughs was in mid-June, well-ahead of the growth schedule of plants in the wild (which usually only start sprouting in late June). Hopefully, the long growing season (June to October) will increase tuber production.

Two watering regimes are being tested as well and we are gradually reducing the amount of water to see how it will affect tuberling.

Beginning in early May 2019, “seed tubers” that trace back to

These Spuds are Nutritious!

Potatoes from the same stocks planted in the experimental troughs were sent to an accredited nutritional analysis lab. Results from five samples (again representing Escalante, Bears Ears and Mesa Verde populations) indicated that when compared to organic red potatoes, the Four Corners Potato contains three times the protein, twice the vitamin B1, calcium, phosphorus, magnesium, manganese, zinc and iron and more than 1.5 times the dietary fiber! The content of fats, potassium and sodium were the same as in red potatoes, but total carbohydrates and, therefore, calories, were higher. The difference in carbohydrate content (i.e. starch and sugars) may be the reason why the Four Corners Potato doesn’t fall apart when boiled for hours, making it perfect for nutritious soups.

Suspected Virus Successfully Confronted!

During propagation in the greenhouse this year, some plants from a single source population had yellow mottling on their first sets of leaves. This type of discoloration is typical of several known potato viruses that can infect the store-bought potato, as well as Four Corners Potato. These plants appeared to recover after more leaves were produced, but their growth over the summer was stunted and some tubers were found to have lesions.

Photo of hand with tubers courtesy of Russell Daniels.

There was no apparent spread of the virus from infected to healthy plants (often facilitated by flying insects), but we destroyed the former just in case. Yet another reason to ensure genetic diversity and clean stocks when propagating any potatoes *en masse*.

Yellow mottling on Four Corners potato leaves and lesions on tubers, probably caused by a potato virus.



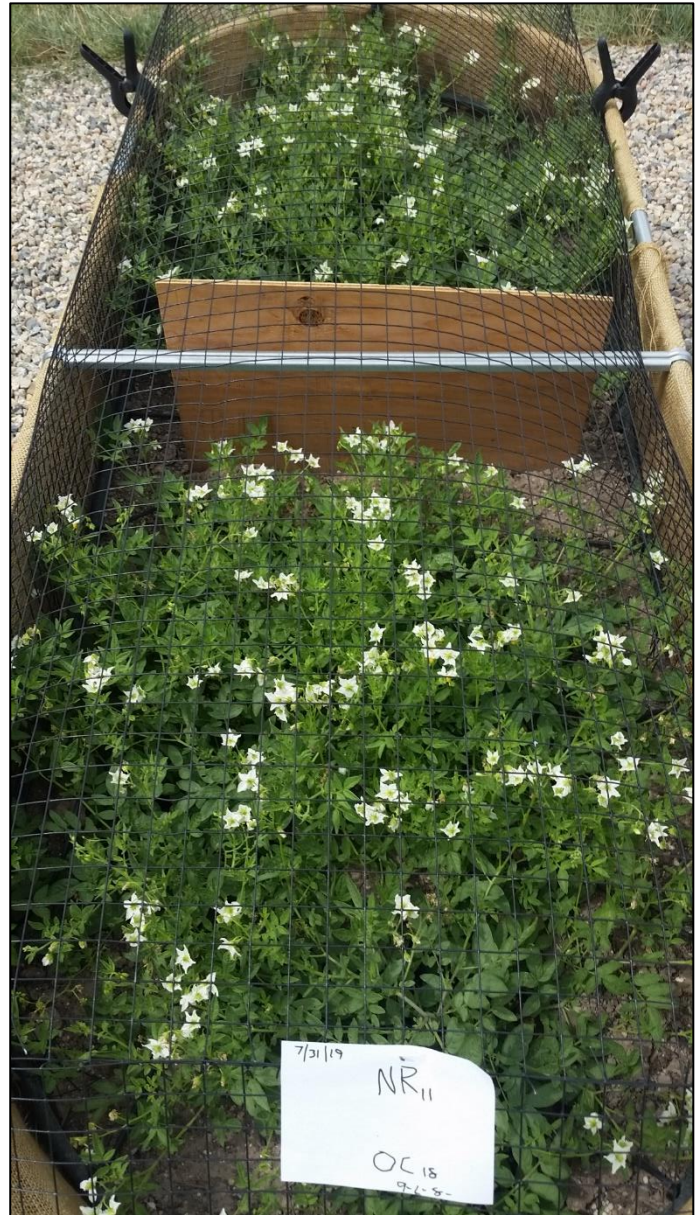
Restaurants Get Ready!

Harvest of the 2019 crop of Four Corners Potato will take place on November 2nd. After setting aside “seed potatoes” for producing next year’s crop, we will distribute as many pounds as possible for your fall indigenous food event at your restaurant. We will work with you to get the word out, but need you to start thinking of how you will want to offer and promote this special native food.



River trout with pinion crême and Four Corners Potato, served in corn husk. Created by Chef Karlos Baca for the Traditional Foods Dinner, November 2018, at the Natural History Museum of Utah.

Questions? Please write Bruce Pavlik (bruce.pavlik@redbutte.utah.edu) or Lisbeth Louderback (lisbeth.louderback@anthro.utah.edu)



We have 10 troughs filled with growing Four Corners potatoes.



The Four Corners Potato Gazette

Updating Our Partners on Recent Advances



Utah Diné Bikéyah Traditional Foods Program Director Cynthia Wilson (left) and farmers Frances Sheppard, Lucretia Holiday, Brit Tallis, William Edwards, Elouise Wilson, Jasmine Felipe, and Dale Toya with bags of seed potatoes from the 2019 crop, Red Butte Garden, November 2019. Photo courtesy of BJ Nicholls/NHMU.

Farmers Receive Seed Potatoes to Start Operations!

Each of the seven farmers, representing Pueblo and Diné traditions, received 200+ tubers from the 2019 crop to be used to start their own propagation operations in spring 2020. They chose from Newspaper Rock, Bears Ears and Escalante populations that trace back to ancient sources of the potato for native peoples. To assist with their efforts, a detailed guide about growing this species was also provided. It is hoped that a grant application submitted by Utah Diné Bikéyah to the Native American Agricultural Fund will provide funds for supporting commercial operations on Tribal lands.

Harvest!

On a sunny November day we met at Red Butte Garden to harvest 10 experimental troughs and 14 large pots of the Four Corners Potato. All seven farmers, along with garden and



The same trough before and after the October 9th freeze, which cut the tuber-forming season by a whole month.

museum staff, pitched in to dig tubers to produce the 2019 crop. A total of 54 pounds were cleaned and dried, about half of what we had hoped.

There were two reasons for the smaller harvest: First, an unusual mass of frigid air descended from the north on October 9, causing nighttime temperatures to drop to as low as 24° F. This killed the potato plants immediately and shortened the tuber-forming season in the outside troughs by one whole month. Secondly, the potato virus that infected the Mesa Verde strain (see August issue of the *Gazette*) resulted in five troughs that did not produce over the summer. Fortunately, these problems can be readily addressed by moving growing operations farther south (around the Four Corners) and by destroying the infected strain before it can propagate.

Restaurants Receive 2019 Potatoes!

Four of Southern Utah's most prestigious eating and drinking establishments received shares of the 2019 Four Corners Potato crop. Although not enough tubers are available yet for a regular spot on the menu, each establishment will offer the potato in special dishes created for promotional events. For example, Hell's Backbone Grill in Boulder presented 270 patrons of their Thanksgiving feast with the opportunity to taste this highly nutritious, indigenous food. Similarly, North Creek Grill, 4th West Pub (both in Escalante) and Twin Rocks Café (Bluff) are planning their own events to honor this ancient food, thereby creating a new market for indigenous farmers.



Restaurateurs: Tony Jacobsen and Blake Spalding (Hells Backbone Grill) (left), Melinda Ashley and Bryce (North Creek Grill) (bottom left), Dave Treanor (4th West Pub) (below) and with their first bags of Four Corners Potato.



Four Corners Potatoes a Hit at 2019 Traditional Foods Dinner!

Nine pounds of Four Corners Potato sure go a long way! Used by Chef Karlos Baca as a compliment to his Ute Bison Roulade (along with wild onion, wild mustard and porcini mushroom jus), nearly 300 people were fed at the 3rd annual event. Navajo Nation President Jonathan Nez spoke to the crowd and Patrick Willie performed a Hoop Dance.



Questions? Please write Bruce Pavlik (bruce.pavlik@redbutte.utah.edu) or Lisbeth Louderback (lisbeth.louderback@anthro.utah.edu)