

Seedhead

News



Summer 2021 nativeseeds.org No. 127

Dear Friends,

Before they came to us, the majority of the seeds in the NS/S collection were stewarded for thousands of years by communities indigenous to the Southwest. Seeds were saved, and passed down for generations, ensuring those most suited to our climate would survive.

With the Southwest facing severe drought, saving these arid-adapted seeds is more important than ever. Seeds that are already accustomed to harsh conditions can ensure that everyone has access to grow their own healthy, local and diverse food.

Donations and memberships from supporters like you ensure that seeds in the NS/S collection are both saved and shared. Because of you, more crops are being grown at the Conservation Center, the Partner Farmer Program is expanding, and a new Partner Gardener Program was introduced this year. All of this work is not possible without your support.

Throughout the pandemic your support not only helped us survive as an organization but also allowed us to meet the increased demand for seed. While things slowly return to normal we hope you continue your support as customer, member, and donor. We are honored to steward the seeds in the NS/S collection and couldn't do it without you. Please be on the lookout for program updates and opportunities to share in the conservation of these arid-adapted seeds of the Southwest.

With gratitude,



Alexandra Zamecnik
Executive Director



SEEDHEADS SPEAK

I'm growing Three Sisters mounds with sunflowers as companions. As a new gardener, I wanted to learn from + build a relationship with these plants that were deeply meaningful to our Ancestors. I love going with my daughter to water the garden under the early morning sun.

Taylor
IG: @celestiallotus

In our family we've been working on conscious gardening and trying to grow plants specific to our cultures' ancestral plants - my husband is Mexican and I'm Black....We chose tobacco, because of its medicinal properties (I'm an herbalist) and because of its Mexican roots.

Adia
IG/FB: AdiaTheDoula

New Mexico Amaranth is an inspiring and majestic plant that towers over the other native seeds in the garden. Revitalizing these seeds and giving back to the Indigenous Communities from which they came from helps the Communities with the restoration and rematriation of their way of life."

Chris Picciuolo, News Reporter
O'dham Action News

From top: @celestiallotus, Chris Picciuolo, Barb Anthony, @AdiaTheDoula, John Marinaro, @AdiaTheDoula
Front cover: Zephyr holding a tomato plant.



Partner Farmers

By Dr. Andrea Carter, AG Outreach & Education Manager

The Partner Farmer Program (PFP) represents an exciting new direction of NS/S seed stewardship. In addition to regenerating seeds at our Conservation Center Garden in Tucson, we are partnering with a growing network of Southwestern farmers to help grow-out and increase the seed varieties we steward. Our partner farmers include community gardens and small-scale family farms representing a range of beginner to very experienced growers; our eldest grower is 90 years old!

As our seed collection represents the cultural heritage and farming knowledge of 50 indigenous communities, we seek to prioritize partnerships



Partner Farmer Justin Casiquito's corn field

with Native American growers based in the communities from where the seeds originated. As a conservation organization, we believe the stewardship of the natural resource represented in seeds is best fulfilled through supporting their dissemination, their successful harvest, and a continuation of the intimate relationship between traditional seeds and indigenous people.

Experienced farmers capable of growing and saving seed are provided bulk quantities of free seed in exchange for a portion of the harvest

being returned to NS/S at the end of the season. Participating growers are free to use, share, and save remaining seed at their own discretion (provided seed or their progeny are not used for commercial breeding purposes). This program not only helps to alleviate the costs of seeds, a major agricultural input, but again, strives to promote access to indigenous seeds by indigenous farmers.

Interested growers are provided the NS/S Seed Regeneration Priority List and seed selection is based on a grower's particular crop interest, experience, and respective climate. As many of the varieties in the NS/S collection are rare, we work with growers to assess potential issues of cross-pollination and communicate seed-saving guidelines to include isolation distance and minimum population size for genetic preservation.

This year's partner farmers include farming initiatives focused on food access and cultural revitalization through agriculture. Partnering organizations include Avi Kwa' Ame Farms (Fort Mojave), Yakanal youth group (Laguna Pueblo), Community Roots Farm (Oceanside, CA), Metro Caring (Denver, CO) and A:shiwi College (Zuni Pueblo).

As the Partner Farmer Program grows in number and capacity, the seed access and distribution promoted through this program will be integral to realizing an NS/S vision in which traditional seeds and foods are vibrantly present, grown, and consumed across communities of the Southwest. ■

To learn more about this program or to become a Partner Farmer please contact Dr. Andrea Carter acarter@nativeseeds.org or (520) 622-0830 ext. 115.



GROWER BIO

Tawaksi (Hopi Sweet Corn)

My name is Justin Casiquito.

I am a tribal member of the Pueblo of Jemez. I am the youngest of three children born and raised in New Mexico. We grew up in both Albuquerque and in Jemez Pueblo. My parents are from Jemez Pueblo but they worked in Albuquerque so we went to school near their place of work. My father was the farmer in the family and I learned just about everything I know about traditional farming from him.

I graduated from Cibola High School then attended the University of New Mexico. It took some searching to find the right path and during this time I developed a passion to become a traditional farmer in my community. I knew eventually there would be a need to organize and manage a position that would encompass all that I was thinking and doing in regards to farming.

Over the years, I have worked at a local organic farm and acquired knowledge to start my own farm selling produce at local markets such as the Jemez Pueblo and Los Ranchos Growers Markets.

Inspiration came from a need to maintain the Pueblo farming culture and provide healthy, local, organic food for my Jemez community.

Since the first step on my journey I have been able to work with the Pueblo of Jemez' San Diego Riverside Charter School and Walatowa Charter High School giving demonstrations to students. This experience has helped me grow and see the benefit of staying in school to support further what I have learned. In addition, I want to educate myself to better serve my Jemez community as a professional.

Currently, I am going into my Senior year at the University of New Mexico. I am deeply motivated to earn my degree in Health Education with a Minor in Sustainability Studies. I chose community health and sustainability because I believe it is vital that we as Jemez community members educate our people on the importance of strengthening traditions and culture for future generations to come. ■

A Soil Like the Sea

By Joel Johnson, Conservation Garden Farmer

WHILE WE HOPE FOR RAIN and celebrate its arrival, in the world of soil, even rain comes with a cost. As water filters through soil it can wash away plant nutrients, flushing them beyond the reach of crop roots. Seasons of drought are challenging to weather in the Sonoran Desert and other arid regions, but the upside is low rainfall results in low nutrient leaching. Because of this, arid regions are known for highly mineralized soils that, when water is added, can support abundant plant growth.

Unfortunately, little rain and leaching also contributes to the highly alkaline nature of desert soil. The same processes that provide rich mineral deposits can also prevent plants from accessing this nutrition. In our most recent soil tests at the Conservation Center, the pH of our unamended soils ranges from 8.1–8.6, equivalent to the pH of salty ocean water. Soil this alkaline can prevent crops from absorbing key nutrients, like iron, zinc, and phosphorus, because they become bound in insoluble forms, unavailable to plant roots.

Nutrient deficiencies are visible in plant leaves and can result in sick, vulnerable plants with poor seed yields. Adding inputs like elemental sulfur can reduce the pH of soils, making these nutrients more accessible to plants, but on a farm scale, truckloads of sulfur only marginally reduce the pH, and this expensive addition can cause other imbalances. A natural, low-cost method for unlocking the reserve of soil nutrients could help desert soils achieve new levels of productivity.

This is what Dr. David Johnson has been working towards ever since he was tasked with a USDA project to reduce the salinity of dairy manure during the composting process. Johnson experimented with traditional windrow methods of composting, but after coming home



with stained, stinky clothes day after day, his wife, Hui-Chun Su, decided there must be a better way.

Together they developed the Johnson-Su Composting Bioreactor—a simple structure built with wire fencing, weed barrier cloth, recycled pallets, and drainage piping. When filled with shredded plant materials and manure, the system allows ambient air to penetrate every portion of the pile without the need for manual turning. Constant access to fresh air

minimizes the smell of the compost and keeps the growing fungal communities intact. An automatic timer irrigates the system for one minute a day, and after a full year, the result is a clay-like compost teeming with biological activity, especially fungi.

These fungi are the key to desalinating salty manures and unlocking desert soils. They excrete oxalic acid, which can bind to metal ions like sodium, tying up salts and reducing salinity. Some fungal networks can also make nutrients like phosphorus more available and help move them throughout the soil. When the final compost product is used to coat seeds before planting or mixed into a slurry to spray soils or plant leaves, agricultural fields are inoculated with beneficial organisms which can improve nutrient uptake and carbon sequestration.

Dr. Johnson has used the compost as an inoculant in field trials, observing yields that doubled the county average for both cotton and chiles. Rachael Ryan, Ph.D. candidate in biology at NMSU, also recorded an increase in dry seed yield of hemp plants from 1-1.5 pounds per plant to 4-5 pounds per plant.

Excited by these results, we built our first Johnson-Su composting bioreactor at the Conservation Center in March. We filled it with shredded plant material from seed grow-outs mixed with dairy manure and fine wood chips. After several months of breakdown, the system is functioning well and full of sweet-smelling, dark organic matter. The Community Food Bank's Nuestra Tierra Learning Gardens shared worms with us in May, which we added to the bioreactor to enhance the breakdown process. Next spring, we'll harvest our first high-fungal compost and use it to inoculate seed for field trials at the Conservation Center gardens. We hope to see increased seed yields and a reduced need for supplementary fertilizers. Building a bioreactor only costs ~\$40-80 and can be filled with a single day's work. If we receive positive results, we'll be eager to share this method with our Partner Farmer network to increase the yield and vigor of our collaborative seed production. ■



New!

PARTNER GARDENER PROGRAM

Memberships, donations and online purchases all help fund important programs that make seed conservation possible. The Partner Gardener Program is a new addition which will help replenish seedstock at NS/S.

“This monsoon season more than 40 generous and intrepid Southwestern gardeners are launching a new seed-saving project with NS/S. Each is part of a Seed Team of 10-15 people who will use their own gardens to grow and save NS/S collection seeds. At the end of the season they'll return part of their harvest to NS/S and they will keep the rest. Though each one may not have lots of gardening space, when we combine their harvests we hope to have plenty of seed to make Havasupai Striped Sunflower, Texas Chiltepin, Colorado River Devils Claw, and Sacaton White Tepary available to the public once again. We expect this pilot project will demonstrate that growers of any size can contribute to seed conservation and food security in our region. Thanks, Partner Gardeners!”

- Dr. Andrea Carter
AG Outreach & Education Manager



Why Can't I Find my Favorite Seeds?

By Sheryl Joy, Acting Seed Bank Manager

With over 1,600 accessions of living seed to care for, NS/S cannot make all seed varieties in the collection available at all times. We are continually cycling through our list of varieties and assessing length of time since the last grow-out, and the health of the variety based on germination testing. These factors determine what gets planted, and in turn what is available each season. When harvests are successful, this fresh seed can be shared with the public. If it runs out, it won't be available until it can be grown again. In the words of our on-site farmer Joel, "It's like a seasonal farm to table restaurant."

The menu is determined by what is in season, giving us a greater appreciation for the food grown at different times of the year.

So this deep treasure chest of seeds that NS/S stewards is constantly being stirred. Rare unfamiliar varieties are rising to the top and becoming available, which is pretty exciting, really ... you never know what new treasures will turn up in the next Seedlisting! However, if it is your favorite that disappears into the depths of that treasure chest, and which may not be available again for years ... that may be frustrating and disappointing. Luckily, there is a simple solution: **SAVE YOUR SEED!**

Seeds can be an endlessly renewable resource, but only if we do our part. Domesticated seeds need people to nurture their plant-parents to their seed-bearing stage, to harvest mature healthy seed at the right time, and to carefully process and store the seed for sharing or re-planting. When we don't fill this role, all the future potential of the seeds (and food) comes to an end. The plants may nourish our bodies, but without seed saving, future generations of seeds will be lost. When the seeds are rare, each of those little endings is a lost opportunity. ■

BENEFITS OF SAVING YOUR OWN SEED

You are not dependent on NS/S or anyone else to provide seed for you.

As you save, you are selecting seed that is better adapted to your own location and microclimate, not to mention your own tastes and preferences.

When you save seed you are **DOING THE WORK OF CONSERVATION**. Not just supporting it, but **DOING IT!**

For more resources, visit nativeseeds.org/saveseeds

Updates from the Director



By Alexandra Zamecnik, Executive Director

AN IMPORTANT LESSON that continues to resonate through my career, whether in international development and diplomacy or now with NS/S, is that lasting conservation of biodiversity – including plants, animals, and land – is most successful with the inclusion of the communities intrinsically connected with the resource. Forests and protected areas cannot be sustainably conserved without the communities that live within them being actively involved. Threatened species cannot be protected without the communities that have traditionally relied on these species for food, materials, or other cultural uses being incorporated in their protection and sustainable consumption. The work of international conservation tries to bridge the gap between global concerns of threatened biodiversity and effective local solutions, but often fails at incorporating local voices. I saw with my own eyes how the international movement for monarch butterfly conservation struggles to connect with the Mexican communities that live in and around the Oyamel forests where monarchs over-winter and how this lack of community connection can thwart conservation efforts.

NS/S also faces and seeks to address this challenge: the desire to conserve a threatened resource that is at risk of disappearing, and the responsibility to steward seeds that retain memories and the histories of countless generations of Native peoples over thousands of years. The success of NS/S, much like the success of any conservation project, is dependent on our relationship, partnerships, inclusion, and ability to listen to the Native communities who are represented in our seedbank collection.

Since 2018, NS/S has made a concerted effort to increase Native representation at the leadership and decision-making levels of the organization. For the past three years, the ten-person Board of Directors has included four members from

Southwest tribes and for the past year, Jacob Butler, a member of the Salt River Pima Maricopa Indian Community has served as the Chair of our Board of Directors. Native leadership at the Board level has translated into a renewed commitment by NS/S to integrate Native voices and representation programmatically and at the highest levels of the organization.

In May of 2021, the NS/S Board voted to begin a formal engagement process with tribal governments to ensure that the organization is participating in continuous dialogue and receiving input from tribal governments in an official manner. Additionally, the Board and staff are developing a Seed Policy that will determine the specific protocols on how the organization conserves, manages, and distributes the seeds in our care. The policy underpins the most important aspects of the organization – how the seeds are managed and shared. Under my leadership, NS/S will be committed to building strong partnerships by listening, engaging in dialogue, having organizational transparency, and being held accountable to established and openly shared policies. ■

Alexandra has more than 15 years of experience in international development and project management mostly in Latin America. She has worked on a variety of topics related to conservation and natural resources management, including climate change and carbon monitoring, community forestry, forest and wildfire management, watershed management, and eco-tourism. She has a B.A. and M.A. in International Relations and is bi-cultural with an Argentinian mother and family that lives, farms, and ranches in the Sierras Chicas of Cordoba.



The Drought Effect

By Susan Phillips, Retail & Merchandising Manager

All Desert Dwellers - humans, plants and animals alike - count on the monsoon taking place each summer in the American Southwest. Monsoon activity, also known as “chubasco,” typically begins in late June or early July and is active for around two months. This profoundly important season brings 30% to 60% of our annual rainfall. There was a time when the monsoon was a reliable event. Immense, puffy cumulus clouds would build throughout the day and by 4:00 in the afternoon, the skies would darken and the wonderful scent of approaching moisture would fill the air. Thunder, lightning and torrential rain would deliver their promise of sustainable life in the desert.

The US Drought Monitor has been documenting water shortages in the Southwest since 2000. Their most recent update indicates that more than half of Arizona, including Tucson, is in an “exceptional drought”, which is the most severe category on the monitor— we are in the largest drought in a decade.

Those of us who live here only need to look outside to see and feel the effect on our own plants and gardens which, thankfully, we are currently able to provide water to. Even more impactful is to walk through the desert and observe how difficult this time has been for struggling plants and wildlife.

Many of the items on the NS/S website are sourced from local suppliers. Agricultural products are grown from dry farming in Arizona and New Mexico, food items are made from locally grown plant ingredients, and body care products are derived from desert botanicals. For the first time, one of our key suppliers had a zero yield of their bean harvest last year and are depending on the rains this year to remain in business. The local prickly pear cactus (opuntia) has produced so little fruit over the past few years that there are shortages of prickly pear juice used in a variety of food items we carry, impacting availability. Even the hardy creosote bush (Larrea tridentata) used in many of our botanical products, is not producing its normally robust, easily identifiable scent due to lack of rainfall.

According to research from the University of Arizona’s Climate Assessment of the Southwest, large, monoculture agriculture consumes approximately 80% of water in Arizona and likely even more in New Mexico. NS/S supports and promotes the conservation of native crops and seeds that have developed tolerance to our arid ecosystem, and we work with small farmers and gardeners that actively work to conserve water. ■

Farewell, Friends

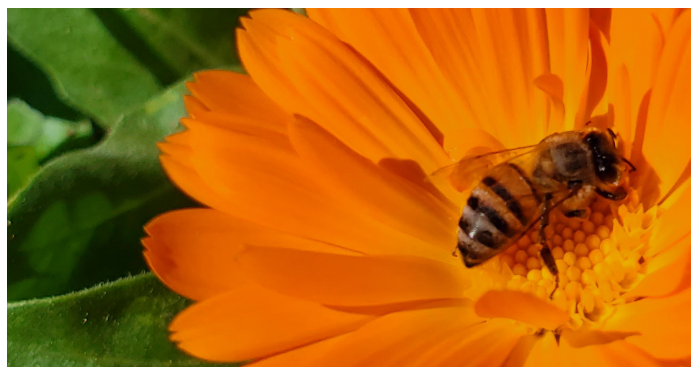
It is with great sadness that we recognize the passing of two esteemed supporters of the Native Seeds/SEARCH community.

Bill McGuire passed away in July of 2020. Bill was an avid supporter and generous donor of NS/S and joined the NS/S board in 2018. He freely shared his knowledge and passion about our native desert bee pollinator friends by holding Saturday workshops in our retail store, as well as libraries and public markets in both the Tucson and Phoenix areas. It was always with great enthusiasm that Bill looked for creative and unique ways to promote and support NS/S.

Angelo Joaquin Jr. of the Coyote Clan of the Tohono O’odham Nation passed away earlier this year. Angelo joined the NS/S board in 1990, and became part of the staff as the Native American

Outreach Coordinator and Diabetes Project Director in 1992. He then led the organization as Executive Director from 1995 to 2000. After his tenure, Angelo continued to be a strong supporter and donor of NS/S.

We will always hold very fond memories of these two passionate advocates of NS/S and they will be missed. ■



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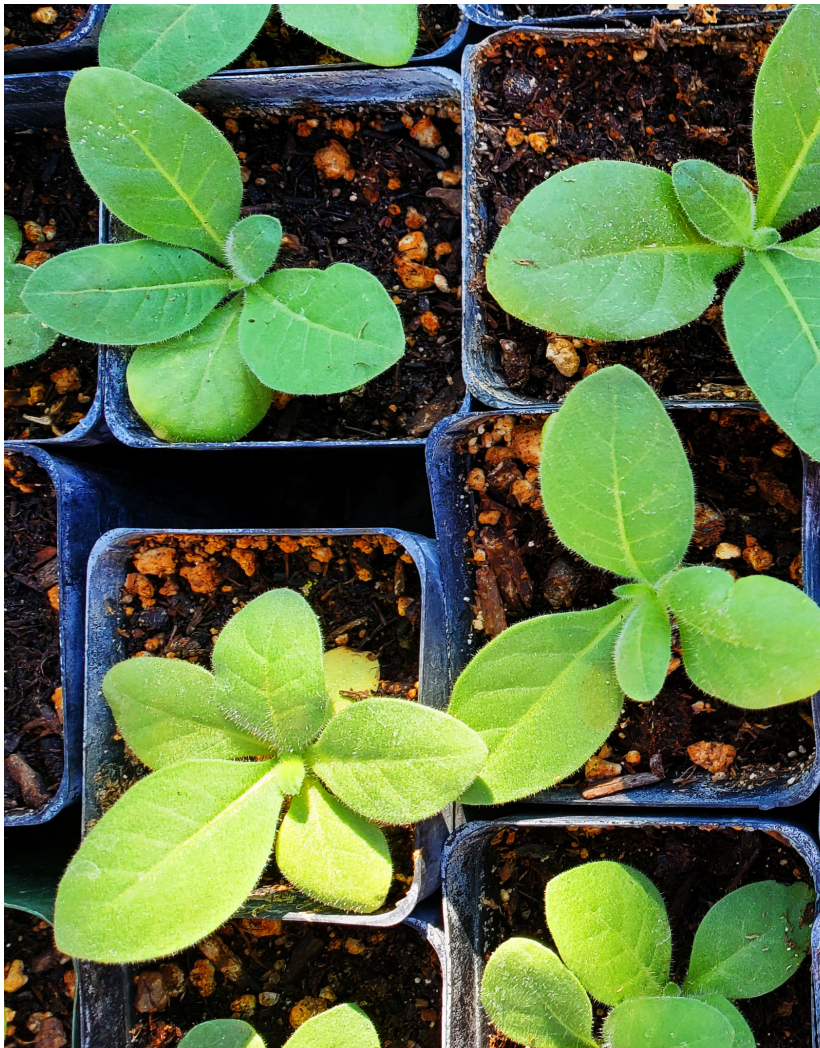
**Make your membership go further, become a sustaining member!
Use the enclosed envelope or visit nativeseeds.org/sustainer**



Native Seeds/SEARCH
3584 E River Rd
Tucson AZ 85718

www.nativeseeds.org
520-622-0830

Native Seeds/SEARCH is a 501(c)3 non-profit whose mission is to conserve and promote arid-adapted crop diversity to nourish a changing world. We work within the southwestern United States and Mexico to strengthen regional food security.



MONSOON *Plant Fair!*

July 23 & 24 (Fri & Sat)

8 a.m. - 12 p.m.

NS/S Conservation Center
3584 E River Rd
Tucson AZ 85718