Summary

Soil Health, Drought, & Climate Change Workshop

The Drought-Smart Indigenous Agriculture Project kicked off its workshop series on March 30, 2023, with a two-day session on soil health, drought, and climate change. Approximately 20 individuals involved in Pueblo agriculture and natural resources management attended the workshop at the Santa Ana Pueblo Wellness Center. Several pueblos were represented among attendees (Nambe, Santa Ana, San Ildefonso, Santa Domingo, Sandia, and Kewa), in addition to two public health representatives with the New Mexico Alliance of Health Councils and the Center for Health Innovation.

Workshop objectives included:

1. Increase awareness of soil health programs available to help Indigenous producers
2. Brainstorm projects to improve drought and climate resiliency
3. Engage with state and federal agency representatives to learn about technical assistance services and funding opportunities

Day 1 Review (See presentation copies here: https://go.unl.edu/9fbk)
Maddie Goebel, a social scientist with the National Drought Mitigation Center (NDMC), summarized interviews conducted with pueblo producers during the fall of 2022. These interviews allowed producers to discuss past experiences with drought, share the challenges they face, and begin thinking about what projects they would like to improve their operation. Soil health was frequently discussed during these interviews and was therefore incorporated into the workshop series as a primary focus.

Dave DuBois, the New Mexico state climatologist, provided a regional climate update as pueblo farmers prepared for the upcoming growing season. While the state has been in some level of drought since 1999, snowpack levels leading into the 2023 spring and summer were above average. However, high temperatures may lead to earlier and/or faster runoff which can cause flooding. Join the *Intermountain West Drought Early Warning Systems (DEWS)* for monthly drought and climate webinars by signing up here: https://shorturl.at/eJNT8.

Soil Health Programs

Representatives from the New Mexico Department of Agriculture (NMDA), the Intertribal Agriculture Council (IAC), and the U.S. Department of Agriculture Natural Resources Conservation Service (USDA-NRCS) shared the resources and services offered by their respective organizations. The following sections provide brief summaries of each presentation.

➢ New Mexico Department of Agriculture

Katie Goetz and Dean Bruce, co-leads for the NMDA Healthy Soil Program, provided an overview of the program, including its purpose, who is eligible to apply, and previously funded example projects. The program awards grants to implement on-the-ground projects that incorporate one or more of the five following soil health principles:

1. keeping soil covered
2. minimizing soil disturbance on cropland and minimizing external inputs
3. maximizing biodiversity
4. maintaining a living root and,
5. integrating animals into land management, including grazing animals, birds, beneficial insects or keystone species, such as earthworms

Katie described who is eligible to apply for funding through the Healthy Soil Program, including "eligible entities" and "individual applicants". Eligible entities include pueblos, tribes, and nations, acequias, land grants, soil and water conservation districts, New Mexico State University Extension Service, and other local government entities with "proven land management to support healthy soil". Individual applicants include individuals, businesses, and nonprofits engaged in farming, ranching, and/or other land management efforts.

Dean provided examples of on-the-ground projects that have previously been supported via the Healthy Soil Program and how they tied into at least one of the soil health principles (see above). These examples included leaving behind plant residue on a crop field, no-till, application of mulch and living mulch, cover crops, and using goats to graze open space. Dean also described and differentiated between soil assessment and soil testing, both of which are services NMDA is willing to assist with.

	Soil Assessment	Soil Testing
What	Examine physical properties of soil, including texture, structure, soil water, and soil density. Determine what soil looks, smells, and feels like.	Examine chemical and/or biological properties of soil, including macro- and micronutrients, salinity, toxicity, organic matter content, abundance and activity of soil organisms, soil pathogens, etc.
Where	In the field	In a lab
Cost	Free!	~$50 per sample
Why	Physical properties affect soil ability to maintain moisture content	Can help determine was amendments could be added to improve

To learn more about the Healthy Soil Program, please email hsp@nmda.nmsu.edu, call 575-646-2642, or visit the NMDA website and search "Healthy Soil Program" at www.nmdeptag.nmsu.edu.

➢ Intertribal Agriculture Council

Nicolas (Nic) Rajen represented the IAC, a national 501(c)(3) founded in 1987 that supports all 574 federally recognized Native American Tribes and Alaska Native Villages. Nic provided an overview of the IAC's mission – to provide a unified effort to promote change in Indian Agriculture for the benefit of Indian people – and the multitude of activities and services offered to help advance that mission. A few highlights from Nic's presentation are described below, though these are not fully encompassing of IAC efforts. More information about IAC can be found at https://www.indianag.org.

- The IAC Technical Assistance Network (TAN) provides direct assistance with USDA program access, including outreach, eligibility, applications, and contract implementation support. The Southwest Region of the TAN includes Colorado and New Mexico. Desbah Padilla serves as the Southwest Region's Technical Assistance Specialist (505-377-0342; desbah@indianag.org).

- The IAC Natural Resources Program includes a partnership with NRCS to further enhance the stewardship of Native American lands by providing improved access to conservation planning technical assistance, management resources, and useful land stewardship tools. These efforts focus on regenerative practices in order to revitalize land and support long-term profitability and risk reduction for producers. Nic Rajen services as a Natural Resources Program Specialist for the IAC (951-933-7680; nic@indianag.org).

- The IAC also offers a Grant Writing 101 class that is open to individuals or tribal nations which covers the IAC funding sources, how to apply, what to include for a successful grant application, and other grant-related resources. Contact Nic Rajen or Desbah Padilla for the most up-to-date information.

➢ Natural Resources Conservation Service

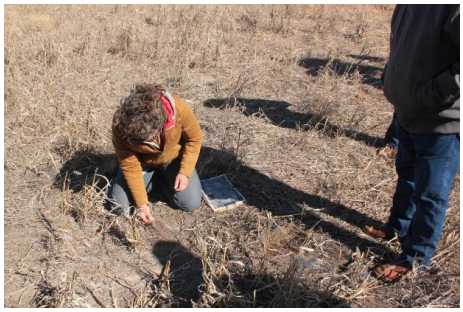
Kristin Graham-Chavez, an assistant state conservationist for field development with the USDA-NRCS New Mexico State Office, presented an overview of NRCS and available resources. Kristin also highlighted NRCS's conservation technical assistance services which are tied to formal conservation planning and NRCS-identified resource concerns, including issues pertaining to soil, water, air, plants, animals, and energy. To request and obtain assistance, an eligible party must first make a conservation plan, preferably with input from the local NRCS field office. Kristin can be reached at 505-706-4404 or kristin.grahamchavez@usda.gov. To learn more about NRCS, please visit https://www.nrcs.usda.gov.

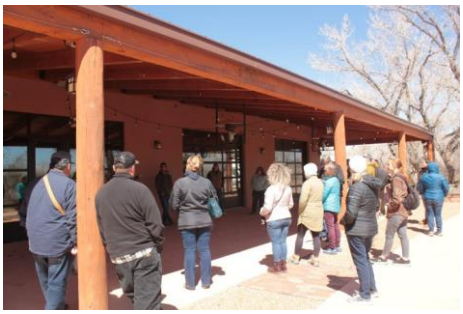
Day 2 Review

The second day of the workshop included two field trips to local field sites. Brief summaries of the field trips and locations are included below. Notably, both field sites are partially funded by the NDMA Healthy Soil Program.

➢ Candelaria Nature Preserve

The Candelaria Nature Preserve (CNP), located in Albuquerque, New Mexico, includes more than 100 acres of former agricultural crop lands that have been converted through "rewilding" to support native wildlife habitat. Cameron Weber, the habitat conservation director for Rio Grande Return, a non-profit restoration and habitat conservation organization and CNP partner, offered workshop attendees a tour of the preserve. The tour included several fields currently being transitioned into wildlife habitat, in addition to a small nursery. While not open for public use, the CNP offers monthly tours for the general public. For more information about the CNP, visit: www.friendsofcandelarianaturepreserve.org.





➢ Santa Ana Pueblo Bosque Restoration Project

Nathan Schroeder, restoration division manager for Santa Ana Pueblo, provided a tour of the pueblo's Bosque Project. This includes creating and maintaining wetland habitat, river restoration, cottonwood bosque restoration via clearing of saltcedar and Russian olive thickets and restoring native wildlife habitat. These efforts help to reduce the risk of wildfire, preserve water resources by protecting further declines in the groundwater table, provide cultural and economic uses for the pueblo, and create essential habitat for native and endangered species, including those utilizing the Rio Grande corridor. For more information, please visit: https://santaana-nsn.gov/dnrbosquerestoration.

About the Drought-Smart Indigenous Agriculture Project

This project is a collaborative effort of the NDMC, the Santa Ana Pueblo, the USDA Southwest Climate Hub, Southwestern Indian Polytechnic Institute (SIPI) and the Intertribal Agricultural Council (IAC), funded by the USDA-NRCS. Together, the team is working to enhance agricultural drought and climate adaptation in Middle Rio Grande pueblos by better understanding the needs of Indigenous farmers and ranchers and leveraging their traditional knowledge and practices. To learn more or get involved, please visit: https://go.unl.edu/yqmf.