ENDURING SEEDS

Sustainable Agriculture

Many of the ancient traditions, customs, religion, and arts of the First Americans are observed today as they were centuries ago. Native Americans learned to use the natural resources available to them, notably in their agricultural pursuits, which remain a vital part of their daily lives. From cultivating corn and squash to grazing animals, American Indians preserve their spirituality and provide for their economic needs. In fact, traditional farming and animal husbandry constitute substantial enterprises on many reservations.

Although some Indian lands are located in arid climates, tribes have learned to use the sun to provide water to irrigate their crops and provide sustenance for their livestock.

Native Plants

Corn	Beans
Amaranth	Wild Rice
Tomatillo	Chile
Squash	Cilantro
Flax	Flowers
Blue Corn	Potatoes
Quinoa	Sweet Potatoes

Just a few of the native plants nurtured by American Indians

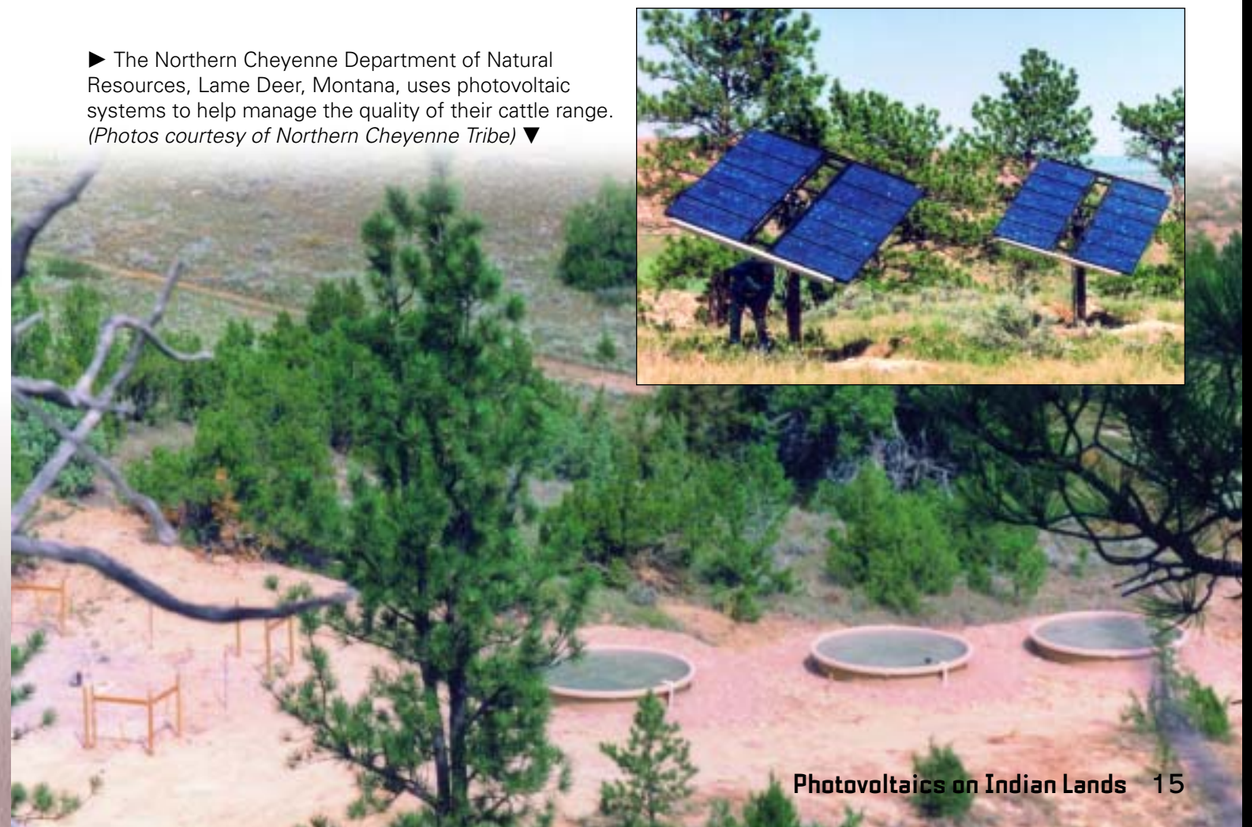
Hundreds of curative drugs have been derived from Native remedies.

◀ Sun drying tomatoes and squash.

The Rosebud Lakota Example

The basic tenet of the "Permaculture as Native Science" program is that of taking care of Mother Earth, who in turn takes care of the People. The philosophy is rooted in the Lakota *Mitakuye Oyasiñ* – "we are all related." Photovoltaics powers water pumps for agricultural pursuits such as home gardens, tree planting, and animal husbandry. Water for remote pastures is vital, but utility power lines are often far away. *(Photos courtesy Center for Permaculture as Native Science)*

▶ The Northern Cheyenne Department of Natural Resources, Lame Deer, Montana, uses photovoltaic systems to help manage the quality of their cattle range. *(Photos courtesy of Northern Cheyenne Tribe)* ▼



▲ The greenhouse at Southwestern Indian Polytechnic Institute plays a key role in its sustainable agriculture pursuits. Native plants will be cultivated for several purposes, among which is a project to detoxify soil and water. *(Photo courtesy U.S. Department of Energy, Golden Field Office)*

▼ This greenhouse is part of the conservation project at the Zuni Pueblo. The tribe has plans underway to use PV to power circulating fans in the greenhouse, so that they can reinvigorate the growing of native plants. *(Photo courtesy Zuni Sustainable Agriculture Program)*

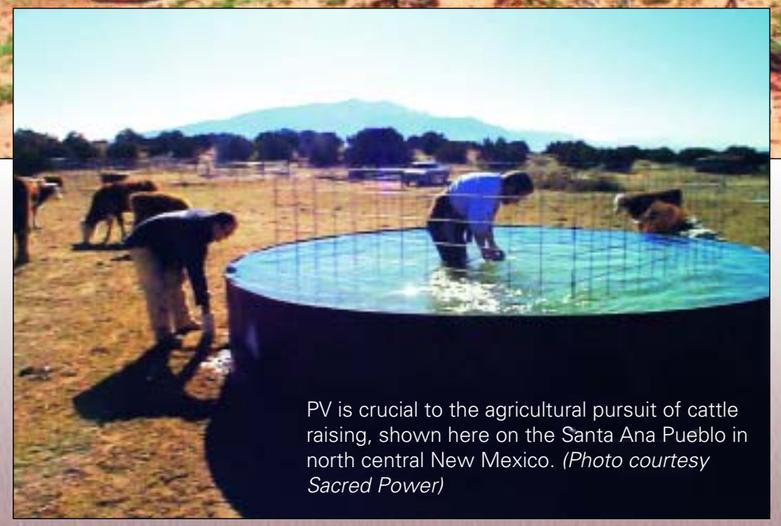
"Sustainability is a traditional cultural value."

Leslie Ramczyk, Lac Courte Oreilles Ojibwa

◀ The Lac Courte Oreilles Ojibwa have a PV installation that powers the caretaker's apartment, but it will be relocated to become part of their agricultural program. *(Photo courtesy Lac Courte Oreilles Ojibwa)*

► One of several Ak-Chin Electric Utility Authority's remote terminal units that charge 12 volt dc batteries to monitor the water level in the canal. Access to the canal means the tribe's goal of self-sufficiency is achievable. *(Photo courtesy L. S. Gold & Associates, Utility Consultants)*

▲ The Zuni Reservation uses several portable solar water pumping systems. When tanks are full, the small systems are moved elsewhere to fill other tanks. The Zuni have thousands of cattle and sheep on their large homelands in western New Mexico. *(Photo courtesy Sandia National Laboratories)*



PV is crucial to the agricultural pursuit of cattle raising, shown here on the Santa Ana Pueblo in north central New Mexico. *(Photo courtesy Sacred Power)*