

Pima-Maricopa Irrigation Project
Education Initiative



Restoring water to ensure the continuity of the Akimel O’otham and Pee Posh tradition of agriculture

***The Akimel O’otham
Ecosystem***

Part 4

“From myth to medicine,” Amadeo Rea writes in his book *At the Desert’s Green Edge: An Ethnobotany of the Gila River Pima*, the Akimel O’otham have always seen themselves “as part of the desert.” While the traditional rancheria system no longer exists today, there are Akimel O’otham elders who still remember this way of life. Within this system, the people relied for food on the harvest of natural crops, the fruits of their agricultural labor, and by hunting and fishing.

Natural Crops

Until early in the twentieth century, naturally growing foods accounted for as much as half of the Akimel O’otham diet. There were nearly 70 native plants—not including 30 introduced by Europeans and Americans—that were eaten at various times in the life of an O’otham man, woman or child. Of these, 58 were harvested. These natural “greens” were an important part of the people’s diet. “Between fresh and dried products, the Pima were never without their greens.” Several of these natural crops served as the backbone of the traditional diet of the Akimel O’otham.

One of these natural crops, the fruit of the saguaro, was so important to the people that their new year began with the “Saguaro harvest moon.” This moon, occurring in late June or early July, marked an important religious celebration. Saguaro fruit was used for a number of purposes, including the making of syrup and jam. The seeds were ground into a meal that could be used to make porridge. But, it was the ceremonial wine made with the syrup of the fruit that was the more important use of this harvested crop. This religious celebration was part of the annual summer ceremony that ensured the monsoon rains fell and sustained the people throughout the summer growing period.

Velvet mesquite beans were another important natural crop. When dried mesquite pods fell to the ground, they were collected and stored in arrow-weed baskets. When ground into flour, the protein and carbohydrate rich flour was used to make bread, pudding and an assortment of other foods. It was even used to make a special drink called *vau*. Lack of rain did not affect the tree’s ability to produce fruit, as its root system extended deep into the water table below the surface. Droughts in the late 1800s and early 1900s, along with large-scale woodcutting, cleared many mesquite bosques from Community lands. A rapidly dropping water table (due to over pumping of the ground water by surrounding communities) further diminished mesquite bosques—and the use of mesquite beans as a source of food. Mesquite as the “staff of life” for the O’otham people has been completely replaced today.

Agave and Cholla buds were also important natural crops harvested by the Akimel O’otham. The agave harvest often took the people “far from the safety of their rancherias into Apache Country,” although some did grow in the Sierra Estrella Mountains. The Akimel O’otham harvested large numbers of agave *hearts* and, once dried, stored them indefinitely. Pit-roasted agave were a delicatessen. Cholla buds (Buckhorn or Pencil) were gathered in the spring and pit-roasted and eaten fresh or dried for indefinite storage.

Most of the natural greens eaten by the Akimel O’otham were either boiled or fried. The annual cycle of greens was spread across most of the year. Some grew only if the rains—winter or summer—came at the right time. In addition to greens, many kinds of seeds were collected and ground into flour or parched. Nut grasses, bulrushes, and hedgehog fruit were all eaten as “snack foods,” while seeds

from plants such as devil's claw and cotton were dietary additives. Peas from the Foothills Paloverde were harvested and eaten raw or cooked. Desert Ironwood seeds were leached, roasted and eaten.

Agricultural Crops

It is irrigated agriculture for which the Akimel O'otham are most noted. The O'otham grew at least six major food crops: corn, squash and pumpkins, tepary beans, lima beans, amaranth and chenopod. All could be readily stored for use later. The three sisters—corn, beans and squash—were dietary staples.

O'otham farmers grew two crops—sometimes three—during the year. These crops were irrigated and grown in an environment where an average of 6-8 inches of rain fell annually. They diverted the river using brush weirs or dams. Headgates, or diversion points from the river, were located several miles upstream. At times, the Akimel O'otham engaged in *aki chin* or dry farming, meaning fields were not irrigated but flooded with rain runoff. To plant crops, Akimel O'otham farmers used an *eskud*, or a planting stick made from a piece of Ironwood. Crops were planted in hills rather than in rows. A second tool was a *giiki*, or a weeding stick.

Akimel O'otham farmers planted crops that were adapted to the desert. These crops matured quickly, produced few leaves—but many seeds—and were drought tolerant. At least two crops were planted each year: one in the spring, after the mesquite leafed out and the fear of frost had passed, and one in July or early August, when the summer rains fell. Enough time had to be allowed so that this second crop could mature before the fall frost arrived. The Akimel O'otham grew at least seven known types of corn (which grew in 60 days). These varieties of corn grew shorter than modern day commercial corns and had less foliage, meaning there was also less water loss through transpiration.

The “River People” also grew several types of beans. Tepary beans were “superbly” adapted to the desert and were the most important bean grown. The Pima lima bean, adapted to the high salinity of the desert soil, was another important bean that was drought tolerant. Several varieties of squash and pumpkins were also grown.

When Father Kino introduced wheat among the O'otham in the late 17th century, they began to grow three crops a year. In effect, the O'otham farmed year-around. The introduction of wheat and other legumes contributed to the increased population of the people. By the late 1700s, the O'otham were selling surplus crops to the growing Spanish presidio in Tucson. Within a century they were providing most of the food for south central Arizona Territory, including the mining and military districts. Many O'otham farmers used the tailwaters from their agricultural fields to irrigate a second crop of wild and semi-wild greens. These crops provided “vitamins and minerals” that were not as “abundant in the starchy crops of the main fields.” If managed properly, the Akimel O'otham could take food home from this “second garden” almost every day of the year.

Fishing and Hunting

An important source of meat (animal protein) among the Akimel O'otham came from fishing and hunting. The Gila River was once home to at least nine varieties of fish, including the Colorado Pikeminnow and the Razorback Sucker. Of these, none remain in the waters of the Gila River Indian Community today. Fish were typically caught in communal fish drives rather than with a hook and line, as is done today.

Hunting also played an important role in the Akimel O'otham diet. Select men from each village hunted game animals. These men would travel to the mountains and hunt bighorn sheep, javalina, mule deer, and other animals. But more usual were hunts involving small animals, rodents and birds. A town crier announced the hunt and perhaps even coordinated it. If an individual hunted alone it required family support, for while he was gone family members watched after his fields.

One form of hunting, called a *shaada* or “a surround,” was conducted on foot. This hunt occurred on the desert floor and targeted jackrabbits and cottontail rabbits, as well as small desert rodents. Younger O'otham men (or older boys) would surround the animals and drive them to a central location where they would be clubbed to death. All would share equally in the catch.

The people also engaged in a *kuunam*, or “a fire drive hunt.” The primary focus of this hunt was rodents and other small animals, such as cottontails and jackrabbits. After the introduction of the horse, the Akimel O’otham became mounted and engaged in a hunt known as a *kuushada* or “a large surround.”

In times of drought—typically in the spring of the year—the O’otham experienced hard times. Stored foods were then at their lowest, game was least abundant and, with the river low, fish were at a minimum. It may have been these times that natural greens—if available—were at a premium. During the course of the year there were always concerns of drought, enemy raids and flooding that could negatively impact the food supply.

The loss of water from the Gila River led to the loss of many of the natural crops upon which the Akimel O’otham once depended. A decreasing water supply also impacted agriculture and hunting and fishing. The loss of this basic resource—the waters of the Gila River—would have grave consequences for the “River People.”

Teacher Plan for “The Akimel O’otham Ecosystem”

Terms to know and understand

- Ecosystem
- Rancheria
- “Greens”
- *Aki chin*
- Native vs. exotic

Critical Thinking:

- After the Akimel O’otham began growing wheat their population began increasing. What correlation exists between the increased wheat supply and population gain?
- How difficult might it be to restore part of the traditional diet? Are there any advantages or disadvantages to doing this?

Activities

- Have students interview tribal elders about the natural crops that grew “wild” in the desert. Which desert plants are edible and were once part of the Akimel O’otham diet? How many can be identified yet today? Have students photograph these natural crops and then describe the way they were used as a source of food. Put the information together in the form of a book to share with others.
- Have students prepare a dinner using only natural crops, traditional agricultural foods and meats that were hunted or fished. If this is not possible, have students make a meal of Indian corn, tepary beans and tortilla soup. Invite family members and elders. Allow the elders to share their own stories about growing and harvesting these traditional foods.
- Research the type of fish that once made their home in the Gila River. Which of these were eaten? Visit one of the fish farms in the Community. How might fish be reintroduced into the Community?

About P-MIP

The Pima-Maricopa Irrigation Project is authorized by the Gila River Indian Community to construct all irrigation systems for the Community. When fully completed, P-MIP will provide irrigation for 146,330 acres of farmland. P-MIP is dedicated to three long-range goals:

- Restoring water to the Akimel O’otham and Pee Posh people
- Putting Akimel O’otham and Pee Posh rights to the use of water to beneficial use
- Demonstrating and exercising sound management to ensure continuity of the Community’s traditional economy of agriculture

Students will be able to:

1. Identify the three main sources of food within the historic Akimel O’otham ecosystem.
2. Learn from their elders the types of traditional foods that were eaten by their ancestors.

Objectives

The Akimel O'otham Ecosystem

Answer the questions below and then, using the answers, find the ten words hidden in the word search below. Words can go horizontally, vertically and diagonally in all eight directions.

T	J	B	A	G	A	V	E	E	P	T	A	Z
T	A	E	H	W	H	Y	T	T	L	T	K	M
G	H	D	X	Y	F	I	G	X	A	T	I	F
N	B	E	X	G	U	R	H	D	N	X	C	L
I	R	P	D	Q	V	K	P	S	T	C	H	T
R	N	P	S	G	T	L	L	O	I	G	I	R
P	M	E	Y	X	E	N	M	R	N	F	N	K
S	M	C	X	B	T	H	T	A	G	G	V	K
J	D	C	R	E	G	V	O	U	S	T	K	G
T	Y	Y	P	T	V	L	F	G	T	X	V	M
D	N	A	L	R	L	W	Q	A	I	Z	R	L
Q	R	Q	T	T	Z	W	V	S	C	B	Z	Y
Y	V	J	R	G	N	K	T	R	K	L	R	Z

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1. The fruit of this cactus was eaten and used in an important summer religious ceremony.

2. The bean from this tree was ground into flour and used to make bread. _____
3. The “heart” of this plant was eaten. _____
4. Its fruit was eaten as a “snack.” _____
5. An Akimel O’otham word meaning to farm with rain runoff rather than irrigation.

6. A cultivated bean that is superbly adapted to the desert. _____
7. Introduced by the Spanish, this grain led to an increased population among the Akimel O’otham.

8. Once lived in the Gila River. _____
9. The effects of drought were most severe during this season of the year. _____
10. An “eskud.” _____