

## Pima-Maricopa Irrigation Project

Education Initiative

2003-2004



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

## *The Finest Fields in the Land*

**Part 53**

“Looking towards the river, fences and deep green blades of maize were plainly visible, showing that although at this moment [the Pima] were inactive, yet they were not always idle.”

William Hunter, Missouri emigrant

Living on a broad fertile plain with access to a good, consistent supply of water, the Pima and Maricopa grew a variety and abundance of crops. Cave Coutts, traveling through the villages with Army Major Lawrence P. Graham in November 1848, described the bottomlands along the river as “far surpass[ing] anything we have ever witnessed for fertility” and representing “a series of the finest fields” he had ever seen, giving evidence “of having been finely cultivated.” The land, emigrant Asa Clarke added, was so fertile and luxuriant “that our feet sink into it, and [it is] of a dark color.” He estimated fields extending along the river for at least five miles, being “laid out in little squares, with sluices in between, to admit the water from the zequias” (acequias or canals) and “formed by driving stakes in the ground” to separate one field from the next. An emigrant passing through a decade later noted “nearly a thousand separate enclosures” or fields divided by fences and irrigated.

Free to adopt those forms of Euro-American technology they believed would enhance their agrarian economy, the Pima accepted only certain ideas and tools that best fit with their agricultural values. Economic activities such as mineral exploitation and sheep raising, for instance, were rejected. Increased agricultural output (without major technological advances other than the introduction of wheat) had already fueled Pima village concentration along an eighteen mile stretch of the south bank of the Gila in the latter eighteenth and early nineteenth centuries. Adopting a strategy of military preparedness, the Pima not only proved to be a formidable opponent to raiding parties but they were also able to increase their agricultural output, positioning themselves as a major producer of agricultural goods on the Gila and Southern trails.

Throughout the first half of the nineteenth century the Pima grew a surplus of food crops, including corn, wheat, beans, pumpkins, melons and peppers. They had, private Henry Smith Turner observed in November 1846, “all the necessaries of life in sufficient abundance, & all produced by their own industry—they raise cattle & horses; corn, wheat, beans, melons quite enough for their own consumption & to furnish supplies for parties of strangers who may pass this way.” The Maricopa were only slightly behind their Pima neighbors in production.

But the Indians did not stop with production. Long known for their friendliness, the Pima also traded their produce with neighbors and passerbyers, using trade as a means to acquire new technology needed to expand their agricultural endeavors. While some trade goods—including “mules, oxen, cows, calves, sheep, green corn, unbolted flour, cheese, grapes, and dried beans”—were available in Tucson from resident Mexican traders, the arrival of the Americans opened a Pandora’s box of new technology and ideas for the Pima and Maricopa. Friendly and hospitable, the Indians entered emigrant camps seeking to sell or trade their goods for tools that would enhance their economy.

The Pima used a sophisticated water distribution system and strict social controls to irrigate their lands and insure the continuation of their economy. Emigrant Benjamin Hayes, for instance, observed individuals had “regular days of work to which they were assigned,” with each village under a “Captain.” Committees were set up in three zones along the river to manage the irrigation system and “there were certain people in each village who decided how each ditch was to be handled” as well as to determine who was to get water. A series of brush dams were used to divert water at various points along the river into a series of *acequias* centered in the Vah ki (Casa Blanca) area.

In 1855, Thomas Antisell, a trained geologist exploring possible railroad routes across what is today southern Arizona, noted the cooperative distribution of water, noting fields were fenced, “each field being small, scarcely 150 feet each way: a sequia (sic) runs around half a dozen fields, giving off branches to each.” Emory, himself a topographical engineer, observed the Pima not only irrigating their lands but also draining it, a measure important to prevent water logging and ensure the leaching of salts from the soil. Such flooding of their fields not only flushed the salts out of the root zone but also fertilized the land by depositing rich silt over the land, maintaining its fertility and productivity.

But while Pima farmers diverted “nearly the whole of the Gila,” they were careful to return the unused water back to the river. Excess water was drained back into the river to be used by neighboring farmers downstream. The Pima and Maricopa’s understanding of hydrology, or the distribution and circulation of water resources, frequently impressed emigrants. On many occasions the forty-niners noted the land was “irrigated by water, conveyed in trenches from the Gila” that one traveler estimated were thirty miles in length. “The whole plot of land” along this particular ditch was irrigated and cultivated by Pima and Maricopa farmers.

All who came through their villages noted the farming skills of the Pima and Maricopa. Pima fields were enclosed “by imperfect fences made of cotton wood poles, set up right in the ground, with smaller branches of cotton wood entwined between.” While having “extensive enclosures [and] good fences” used to separate land used by individual farmers, such enclosures likely had another function, namely that of slowing the flow of irrigation water to spread the fertilizing silt deposits of the river across the land. Lieutenant Emory saw their fences as setting “an example of economy in agriculture worthy to be followed by the Mexicans, who never use fences at all.”

Because of a good supply of water, a high water table and a luxuriant soil, the Pima and Maricopa initially did not use ploughs in cultivating their fields, using handmade wooden axes, hoes and harrows on the “rich and easily worked” soil. When the Mormon Battalion passed through the villages in December 1846, Sergeant Daniel Tyler observed no ploughs were used “and probably only forked sticks were used to loosen the soil, as it was loose, rich and easily worked.” Other emigrants observed agricultural implements were unnecessary as the “soil is so easily pulverized that ploughs are not needed.”

Simple tools such as “a stick of wood for a plow, brush for a harrow, and a stone Muller for a Mill” served the Pima and Maricopa well. While simple, the tools helped the people prepare the fields before they were planted and irrigated. Nonetheless, the Indians desired to acquire American implements so they could more efficiently and effectively cultivate their land, especially seeking tools from government officials such as military officers who might have the authority to fill such requests. When Major Graham passed through the villages from the west in November 1848, for instance, a Pima village chief name Juan Jose asked for “a thousand or two spades, so they might have a great deal of corn for the next time white men came along.” Such requests were rarely, if ever, made to emigrants.

By the latter half of 1849, change was afoot in the Indian manner of farming. Wooden Mexican ploughs—probably already in the villages but lacking a sufficient number of oxen to pull them—were noted being used by the Pima. While the Pima and Maricopa were known to have good horses, mules and oxen were in short supply. And while a horse might be purchased from the Pima at a high price, mules and oxen were never sold, demonstrating the Pima desire to utilize these animals in their expanding agricultural endeavors. “Being an agricultural people,” emigrant William Chamberlin wrote, “they require what few animals they have for that purpose.”

In December of 1849, forty-niner Benjamin Hayes noted the Pima had “no good animals to trade” and John Bartlett, entering the villages as part of the US-Mexico boundary survey in 1852, wrote it was “impossible to procure a single mule” from the Pima. A Missouri emigrant, however, noted Chief Antonio Culo Azul told him “We could procure from his people whatever we stood in need of,” going so far as to indicate the Pima had “plenty of horses, mules and oxen,” which it turned out they did not have. What few draught animals the Pima had were carefully guarded because of their desire to increase their agricultural output.



## Teacher Plan for “The Finest Fields in the Land”

### Terms to know and understand

- Luxuriant
- Formidable
- Technology
- Pandora’s Box
- Acequias
- Draught Animals

Students will be able to:

1. Describe Pima and Maricopa agricultural fields and crops they produced.
2. Explain ways Pima and Maricopa agriculture was changing in the mid 19<sup>th</sup> century.

**Objectives**

### Critical Thinking:

- Mexican ploughs made of wood, while periodically noted prior to 1849, were more frequently observed after 1850. One emigrant noted oxen were used to pull “a long hooked-shaped stick used as a plough.” Metal axes and hoes were more frequently noted as being used in cultivation. Benjamin Hayes, a forty-niner writing in December 1849 noted the “Pimos ploughing their lands.” John Russell Bartlett, an American boundary commission on the US-Mexico boundary survey team of 1852-1854, noted not all land was yet being ploughed by draught animals, perhaps implying the Pima used ploughs drawn by oxen to break new land not then in cultivation. According to William Goulding, a mid 19<sup>th</sup> century traveler through the villages, the Pima never used the plough, only the hoe. If the Pima and Maricopa desired to use a metal American plough that required an ox or mule to pull, would they need any “education” regarding how to use it? Would the use of a plough be a major change in technology? How might the plough have benefited the people? Throughout the 1850s the Pima and Maricopa requested more farm implements and instruction in how to use such tools.

### Activities

- The Pima and Maricopa grew a surplus of food and forage crops. Food crops included corn, a variety of beans (Pima lima, tepary, etc.), wheat, pumpkins, melons and other food crops. Forage included grass, corn stalks, and cotton. Have students research how the Pima and Maricopa were able to preserve and store such food crops for extended periods so they could be sold or traded with others. Have students look at the picture on the preceding page and discuss with them one method of storage.

### 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 up to 146,330 acres of farmland. P-MIP is dedicated to three long-range goals:

- Restoring water to the Akimel O’otham and Pee Posh.
- 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.