Hopi Dry Farming: 2000 Years of Resiliency

By

Michael Kotutwa Johnson, PhD
Research Associate
Native American Agriculture Fund
The Native American Agriculture Fund (NAAF) is a private charitable trust that came to fruition out of the Keepseagle settlement. Objectives include the establishment of sustainable food production systems throughout Indian Country and to help Tribes achieve maximum productivity and full protection over their lands and resources.

……to support and promote Native American farmers’ and ranchers’ continued engagement in agriculture.

**Funding Areas**

- Business Assistance
- Agricultural Education
- Technical Support
- Advocacy Services
Native American Agriculture Fund

FEEDING OUR PEOPLE.
GROWING OUR ECONOMIES.
BUILDING OUR FUTURE.

REIMAGINING NATIVE FOOD SYSTEMS:
A VISION FOR NATIVE FOOD AND
AGRICULTURE INFRASTRUCTURE

https://nativeamericanagriculturefund.org/
Environmental Factors and Location of Hopi Tutskwa

- Semi Arid Climate
- Northeastern Part of Arizona
- Colorado Plateau
- 4500-5500 Foot Elevation
- 6-10 Inches Annual Rain Fall
- Desert Shrubs and Grasses
- Sandy and Clay Loam Soils
For over 2,000 years, we have tested and adapted our agricultural techniques. Our knowledge of the environment enables us to overcome the many challenges of farming without the use of pesticides, herbicides, and man-made irrigation systems which are commonly used by today’s conventional agricultural systems.

Johnson, M.K., ASM Exhibit, 2018
Why and where did my agriculture knowledge come from?
Indigenous Generational Knowledge
Hopi Farming: A Way Of Life

We call corn our mother. Corn has nourished the Hopi for thousands of years. Corn is so important to us that we can't put a value on it. We don't take it to the store. We don't sell it or use it to feed animals like commercial farmers do. We plant corn to preserve our way of life; not to make money. As long as we keep taking care of our mother, we will be here for a long time.

Corn plants, like us, need help standing up once in a while, especially when challenged.
Hopi Agricultural Calendar

Westward - Tsavong
Blue - Yakiwa
Corn - Saltap qa’q'á

Northward - Kwiniqaq
Yellow - Slikyangqpu
Corn - Takuri

Skyward - Könim
Purple - Kokoma
Corn - Kokoma

Southward - Taashiq
Red - Pasangqpu
Corn - Palessa’q’á

Eastward - Hoopaq
White - Qambilisa
Corn - Qótqa qá’q’á

Hopi Agricultural Calendar

Powamuya
“Rejuvenation Moon”
Rebirth of life

Kwiyamuya
“Windbreak Moon”
Building protection for fields

Osómuya
“Howling Wind Moon”
Emergence of life

Hatikonmuya
“Bean Planting Moon”
Begin early planting of beans and early corn

Tal’agamaasavi
“Summer Solstice”

Wuwo’uyismuya
“Big Planting Moon”
Group, community planting of the large crops

Ta’lagnamaasavi
“Summer Solstice”

A’nukmuya
“Corn Leaf Harvesting Moon”
Taking care of the field, corn tassels are harvested

Tala’paamuya
“Summer Moisture Moon”
Weeding, taking care of the field

Pazmuya
“Moisture Moon”
Efficient moisture for the fields

Kyelmuya
“Sparrow Haun Moon”
Final dry harvesting of fields

Kyaamuya
“Respectful Moon”
The Earth is at rest, quiet time for the land

Northward - Kwiniqaq
Yellow - Slikyangqpu
Corn - Takuri

Hopi Agricultural Calendar

A Project of
The Hopi Foundation
“Hopi is the one of the few places I know where corn is raised to fit the environment and the environment not manipulated to fit the corn”

Kotutwa
What Makes Growing Crops in a Semi Arid Region Possible without Substantial Annual Precipitation or Irrigation?
Two Key Factors in Hopi Agriculture

Amount of Snowfall

Amount of Rainfall
We use existing vegetation as Indicators of soil moisture prior to planting.
Environmental Factors Determine Plant Spacing and Planting Depth
One-to-two-acre fields located in areas to capture moisture from monsoonal events
Sandy Slopes
Washes or Channels
Place-Based Adaptive Management Techniques
Challenges For Hopi Farmers

For over 2,000 years, we have tested and adapted our agricultural techniques. Our knowledge of the environment enables us to overcome the many challenges of farming without the use of pesticides, herbicides, and man-made irrigation systems which, today, are common components of commercial agriculture.

Long ago, Hopi farmers figured out how to overcome environmental challenges, such as drought, sand storms, wind, insects, and animals that threaten our plants.

**Challenges**

- Windstorms, prevalent to the north, can cause damage to newly planted crops.
- High winds and blowing sand can damage young corn plants.
- Squash plants will wilt in the dry soil of the modern corn plants.
- Low rainfall, squad, bugs will rapidly destroy plants.
- Crows can damage these sweet corn plants.
- This bean plant was harmed by gophers.
- Rabbits can cause problems, but at harvest of mescal beans, the plants can eat the plants in individual rows.

Young plants are like children; they need to be protected up to a certain age. Once they reach maturity, they can look after themselves.
Women’s Role In Farming

The crops we raise and tend to are for the women and our children. For it is the women of Hopi who are the true stewards of Hopi society. We Hopi men say, kwakwháy (thank you) for all that they do.

— Michael Kautzua Johanna

In Hopi society, women are integral to agriculture. They play a vital role before, during, and after the harvest. The women own the fields, provide the seeds to be planted, and save seeds after the harvest. The men, sometimes with help of women, plant crops, tend them, and harvest the fields.

After the harvest, the crops, are given to the women of each family. The women meticulously select seeds to save for planting the following year. They are responsible for storing and distributing the produce that is grown during each season.

The women transform the crops of corn, beans, and squash into traditional Hopi meals and for use in ceremonies. One traditional Hopi bread is called piliki, which is made from blue corn meal and ash.

For centuries, women have ground the corn with special stones. The cornmeal is used for ceremonial and household purposes.
Abundance of Genetic Biodiversity
Drought Tolerant Plants
Usable Environmental and Cultural Knowledge for the Next Generation
Indigenous Peoples protect 80% of global biodiversity on a mere 25% of the planet's land with less than 5% of the world’s population.

SOURCES


2. Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Regional Assessments of Biodiversity and Ecosystem Services (2018)
Hopi agriculture above all us is based on survival and a deep-rooted belief system where hope and faith are always in continuation no matter the circumstances.
Thank You!

mjohnson@nativeamericanagriculturefund.org