

# ARCHAEOLOGY EDUCATION PROGRAM

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**Mississippi  
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Archaeology  
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**This year's theme:  
Plant and Animals  
Remains**

The theme of this year's Archaeology Education Program Newsletter is Plant and Animal Remains. The first issue provided an overview of wild plants, and this issue will focus on cultivated plants. MVAC's Laboratory Director, Dr. Connie Arzigian, provided content information.

## Introduction

Most of the foods we consume daily were domesticated thousands of years ago. Those early plant geneticists didn't know they were reshaping history, but they did know how to improve the wild plants and animals that they depended upon. They learned through experience that if they weeded out other plants, the food plants did better; if they replanted a portion of a root, the plant would come back the next year; or if they planted some seeds near their village, they didn't have to travel as far to harvest their favorite plants. Through such selection processes, people manipulated plants and animals to increase the traits that they preferred in their foods. Fruits became bigger and juicier, and wild oxen became smaller and less aggressive. Such actions have resulted in plants and animals that are "domesticated," that rely on humans for their propagation.

## Domesticating Plants in the Americas

Archaeologists thought for many years that all of the native crops came from Central America, but now we know that eastern North Americans independently domesticated a number of plants, including squash and gourds. Over seven thousand years ago, people were finding wild gourds along streambanks and using them as simple containers or scoops. Over the millennia, people selected for larger gourds with thicker flesh and seeds that could be roasted and eaten; today we have Halloween pumpkins and a wide range of squashes. Eastern North Americans also domesticated sunflowers and some grasses including maygrass and goosefoot.

In Mexico, maize or corn evolved from a wild grass called teosinte. This plant still grows wild across Central America. It has a small seed spike with seeds enclosed by "glumes" or husklike sheaths around each grain. Each plant had several branching stalks, each with several spikes. Researchers from UW-Madison have been trying to track how these spikes evolved into cobs. So far, the earliest archaeological corn, about 4700 years old, appears to be already domesticated. Wild teosinte seeds are released from their husks when mature, and the seeds dispersed. The kernels from archaeological sites lacked the ability to disperse their seeds: they were dependent on people to husk the seeds and replant them, therefore they are domesticated plants.

The people growing these early crops were not farmers in any true sense, but migratory hunters and gatherers who added some gardening to an otherwise unchanged way of life. Although maize was domesticated very early in Mexico, it arrived in the Midwest only about 200 AD, and was not common until the Late Woodland period after 800-1000 AD, when people began to shift from hunting-fishing-gathering to more substantial farming. Mississippian and Oneota populations in the Midwest were the first real farmers. The crops gave them an abundant, easily storable food whose production could be controlled better than wild plants.

Wild beans were domesticated in both Mexico and in the Andes. There was selection to increase the size of beans, but other changes were also necessary to make the crop useful for people. Wild bean pods will forcibly expel their seeds, strong fibers in the pod contract as they dry out, and the pod explodes open, scattering the seeds. This is a great way to reproduce, but not very convenient for people to harvest the beans. Beans first appear in the Midwest about 1300 AD, very late in prehistory, and are part of the full-scale agricultural communities.



# Ancient Recipes

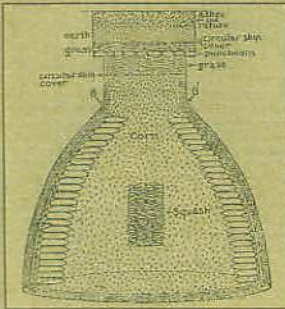


Photo taken from "Buffalo Bird Woman's Garden," by Gilbert L. Wilson.

Native Americans did not have any wheat or other grains to make flour; they used corn meal for porridge, stews, soups, and breads. Corn is a starchy plant with poor quality protein. Beans are high in protein, and together with corn they provide a complete and high quality protein for the diet. Squashes were important for people as a good source of Vitamin C. The fleshy fruits were sliced thinly, dried in the sun, and could be stored for winter. Corn was either shelled or left on the cob. Corn, beans and sliced squashes were stored in large pits dug into the ground and lined with grasses. Archaeologists find many of these pit features at sites. Often they were refilled with garbage after being emptied of their stored foods, and give archaeologists a glimpse at past diets.

## Roasted Pumpkin Seeds

Remove seeds from a pumpkin. Rinse off the pulp. Place the clean seeds on a cookie sheet and add a little tamari or salt. Broil each side of the seeds for three to five minutes. [Recipes taken from *In the Three Sisters Garden*, p. 108]

## Corncakes

1 cup cornmeal	1 tsp. salt	1-2 Tbs. maple syrup
1 cup boiling water	1 egg	1/2 cup milk
2 Tbs. melted butter	1/2 cup flour	2 tsp. baking powder

1. Put cornmeal in a bowl. Add salt and syrup. Slowly stir in boiling water. Cover these ingredients and let them stand for 10 minutes.
2. Beat an egg with the milk and melted butter. Add these to the cornmeal when the 10 minutes have passed.
3. Sift flour, resift with baking powder. The second sifting makes the corncakes decline rather than heavy.
4. With a few stiff strokes, stir the sifted ingredients into the corn batter. Cook on a cast iron griddle. Drizzle with fresh maple syrup and serve.

[Recipe taken from *In the Three Sisters Garden*, p. 118].

## Friendship Cornbread

Combine in large bowl:

1 cup flour
1 cup cornmeal
1/2 tsp. salt
2 tsp. baking powder

Combine in small bowl:

4 Tbs. honey or maple syrup
2 eggs or 1/2 cup yogurt
1 cup milk
4 Tbs. oil

1. Mix the dry ingredients in one bowl and the wet ingredients in another. Combine the two with a few strokes.
2. Place paper muffin liners in a muffin pan. Pour the batter into the liners.
3. Bake at 400 degrees for 10-15 minutes.

[Recipe taken from *In the Three Sisters Garden*, p. 147].

## Popcorn with Sunflower Seeds

Dry popcorn on the cob. Remove the kernels with a flick of your thumb. Pop them in a popcorn popper. Sprinkle with melted butter, sunflower seeds, and nutritional yeast. [Recipe taken from *In the Three Sisters Garden*, P. 108]



# Identifying Domestication in the Archaeological Record

Archaeologists track the history of domestication of plants and animals by looking at some indicators of domestication. Plants usually show increased grain sizes, and changes in the way seeds are dispersed. Seed coats may become thinner or less brittle. Fleshy fruits become larger.

Animals show evidence of herding before domestication. The bones show changes in size, often getting smaller and therefore probably less aggressive than their wild ancestors. There are also differences in the ages and sexes of animals harvested from wild versus tame herds. For example, in a herd maintained for meat production, young males are harvested at maturity, while females, the breeding stock, are maintained for several more years. Thus, when archaeologists see a change in the populations of animals harvested, they can infer the initial stages of domesticated herds, even before there are major changes in the animals themselves.

## Matching Game:

Some of the foods we use every day have a very long ancestry. Test your knowledge of where and when domesticated plants and animals first appeared around the world. Draw a line from the plant or animals on the left to the place and time of domestication on the right.

### Plants

1. maize
2. chile peppers
3. wheat
4. potatoes
5. rice
6. millet and sorghum

### Where and when first domesticated

- A. Mexico, at least 2,500 years ago
- B. Yangtze River, South China, 8,000 years ago
- C. Central Mexico, at least 5,000 years ago
- D. Andes Mountains, 4,000 years ago
- E. Fertile Crescent (Mediterranean Coast to the Zagros Mountains) 9,500 years ago
- F. Southern Sahara, 3,000 years ago

### Animals

7. cattle
8. goats
9. guinea pigs
10. llamas

### Where and when first domesticated

- G. Peru, 4,500 years ago
- H. western Fertile Crescent, 8,000 years ago
- I. Andes mountains, at least 5,000 years ago
- J. Fertile Crescent, 9,000 years ago



Today's corn was domesticated from the teosinte plant. Photo taken from "The Emergence of Agriculture," by Bruce D. Smith.

## Answers:

1. C
2. A
3. E
4. D
5. B
6. F
7. H
8. J
9. G
10. I



# Domesticated Plants Resources

These book reviews,  
websites, and places  
to visit can be used  
as supplemental  
information.  
Let us know if you  
have found any  
great resources  
we can share  
with our readers.

## Book Reviews

**Title:** Earth Knack: Stone Age Skills for the 21<sup>st</sup> Century

**Author:** Bart and Robin Blankenship

**Publisher:** Salt Lake City: Gibbs-Smith, Publisher, 1996

**Age Range:** teachers, adults

Guide for replicating skills used in the natural world.

**Title:** In the Three Sisters Garden: Native American Stories and Seasonal Activities for the Curious Child

**Author:** JoAnne Dennee with Jack Peduzzi and Julia Hand

**Publisher:** Montpelier, Vermont: Food Works, 1995

**Age Range:** 10 - adult

Activities geared to children, with instructions and related stories

**Title:** The Emergence of Agriculture

**Author:** Bruce D. Smith

**Publisher:** Scientific American Library, W.H. Freeman and Co., New York. 1998

**Age Range:** 14 - adult

Technical discussion of the process of domestication and the archaeological evidence.

**Title:** Buffalo Bird Woman's Garden

**Author:** Gilbert Wilson recorded Buffalo Bird Woman's detailed talks about her tribe's gardening activities

**Publisher:** reprinted by Minnesota Historical Society Press, St. Paul, 1987

**Age Range:** 12 - adult

Wonderful descriptions of traditional Native American practices.

## Web Sites

### Origins of Agriculture

[http://www.mc.maricopa.edu/academic/cult\\_sci/anthro/lost\\_tribes/quiet\\_revolution.html](http://www.mc.maricopa.edu/academic/cult_sci/anthro/lost_tribes/quiet_revolution.html)

*A Quiet Revolution: Origins of Agriculture in Eastern North America* by Ruth Selig (National Museum of Natural History Bulletin for Teachers, Vol. 15, No. 2 1993).

### Mesa Community College

[http://www.mc.maricopa.edu/academic/cult\\_sci/anthro/lost\\_tribes/hg\\_ag/index.html](http://www.mc.maricopa.edu/academic/cult_sci/anthro/lost_tribes/hg_ag/index.html)

This page is from a large site at the Mesa Community College, Mesa, Arizona, that has great discussions about the origins of civilization.

### Ohio Historical Society

<http://www.ohiohistory.com/resource/teachers/teachpag/nagarden.html>

The Ohio Historical Society Teacher Curriculum, with detailed lesson plans creating a North American Garden.

### Native American Recipes

<http://www.nativetech.org/food/>

Some Native American Recipes contributed by visitors.