

Native American Seed Keepers and the Watermelon

Authors: Lisa C. Young (University of Michigan), Hannah G. Hoover (University of Michigan), and Sarah Oas (Arizona State University)

READERS: sections of this paper are still in outline form. The section entitled the Watermelon's Migration Story from Africa to the Americas is not important for our discussion of food sovereignty. Please feel free to skip/skim it. You will also see sections with notes about additional content we plan to add.

Introduction: Food Sovereignty and Colonization

Food sovereignty flourishes when communities oppressed by colonial-settler capitalist empires are empowered to make decisions about the food they eat, what and how this food is grown, and the culturally appropriate ways it is prepared and shared. Today, the fight for food sovereignty is worldwide and includes many diverse voices, from the international peasant movement of Le Via Campesina ([LINK](#)) to urban farmers who are cultivating a food-sovereign Detroit ([Keep Growing Detroit](#)). For Indigenous communities of North America, food sovereignty is not only about the importance of food choices, it is also part of a process of healing from generations of broken treaties and government assimilation policies that divorced communities from their ancestral homelands and traditional knowledge. For many, the process of growing and eating the foods that nourished their ancestors helps restore the relationship with the land and non-human relatives (e.g., plants and animals), which are so essential to Indigenous identity and well-being (Maples 2022).

Many Indigenous health professionals, historians, and chefs call on Native communities to reclaim their food system by learning about the history of their ancestral foods and to incorporate these foods into their diet. This type of eating focuses on place-based foods that were foraged or farmed in the Americas prior to the arrival of Europeans. Eating foods that were eaten during pre-colonial times is an essential part of the movement to decolonize diets and reclaim traditional foodways ([Mihsuah 2005](#)).

Foods during pre-colonial times are important because they represent foodways that had not been devastated by colonial-settler imperialism. However, recent analysis of periods of initial contact in various areas of what is now called the United States argue that European explorers and early settlers were dependent on Indigenous farmers' knowledge of local resources and growing practices for their survival ([Silverman 2019](#), [Trigg 2020](#)). As a result, initial periods of colonization in the 16th and 17th centuries represent a time when Indigenous communities were food sovereign. Native peoples made decisions about what seeds to plant, including those that came to the Americas

with European colonizers ([Newsom and Trieu Gahr 2011](#)). Several of these foods, especially fruits, were rapidly accepted into the foodways and farming practices of Indigenous communities across North America ([Gremillion 1993](#), [Blake 1981](#)).

In this paper, we further explore one of these foods – the watermelon. We build on [Blake's \(1981\)](#) important synthesis of the rapid and early acceptance by Indigenous communities in North America by tracing the history of the watermelon from its origin in Africa to its role as a traditional food in Indigenous communities in the southeastern and southwestern US.

The Watermelon Migration Story from Africa to the Americas

Africa is the original homeland of the watermelon, and scientists continue to investigate when and where people began to cultivate the watermelon using genetic analyses of wild melons and information from archaeological sites. A recent genetic study by [Renner 2021](#) argues that a type of wild melon grown in Sudan, called Kordofan melon, is the best candidate for the wild ancestor of today's sweet watermelons.

OUTLINE for rest of this section

- Summary of Renner's research on archaeological evidence from Egypt and importance of continued selection for sweetness after domestication.
- From Africa to Europe
 - When: [Paris 2015](#): based on textual evidence and iconography watermelon was grown in Italy as early as 961 AD. Implication: if mentioned in the texts, it was fairly common.
 - Variety of watermelon grown in Europe:
 - Blake: argues from historical texts that at least two different varieties of watermelon were growing in Spain in the 12th century AD. Varieties have different colored seeds and color variation in the rind.
 - Supported by recent analysis: [Gyuai et al 2012](#): genetic analysis of seeds from archeological sites in Hungary dating to the 13th and 15th century AD argue that both red and yellow fleshed watermelon were grown.

From the Eastern to the Western Hemisphere

Watermelon was introduced into the Caribbean during early colonial encounters between Spaniards and Indigenous communities. During Columbus' second voyage (1493) to Española, multiple ships transported over 1000 men along with seeds to be planted for provisions. This included melons, with some scholars interpreting this to be watermelon ([Crosby 1972: 67](#)). Spanish expeditions into and settlement of *La Florida* in

what is now the southeast US likely saw the initial introduction of watermelon into North America by the early 16th century (Newsom and Trieu Garh 2011:564).

Additional watermelon varieties from Europe likely arrived during subsequent colonization and from Africa with people who were enslaved and forcibly brought to North and South America. [Carney and Rosomoff](#) (2017) discuss two possible ways that crops were brought to the Americas from Africa: (1) enslaved women braiding seeds, specifically rice, into their hair as recorded in traditional stories of communities in Brazil and elsewhere; and (2) as food provisions acquired by captains of slave ships to keep their human cargo alive while crossing the Atlantic Ocean. Though we were unable to find specific mention of watermelon seeds as part of these practices, the appearance of watermelon at 16th and 17th century plantations in North and South America support their spread through the transatlantic slave trade. [Romao \(2000\)](#) argues that one of factors that may account for the genetic diversity of watermelon currently grown by small-scale farmers in northeast Brazil is that seeds were introduced multiple times during colonial expansion, including being brought by enslaved peoples from Africa.

Importantly, enslaved peoples brought with them knowledge for how to grow watermelons. This knowledge likely included traditional practices used in parts of western Africa today, such as intercropping with beans to exploit microbial nitrogen fixation and with cereal crops like millet and maize where watermelon vines protect cereal seedlings ([Sousa and Raizada 2020: 5](#)). Tombouctou farmers in Mali plant watermelon seeds in flood plains, a traditional *décrue* practice that was transplanted from Africa to plantations in the southeast US to grow rice as a cash crop for many plantations in the 18th and 19th centuries.

The Journey of the Watermelon to the Lands Called the United States Today

Using ethnohistoric descriptions and archaeological evidence, Blake (1981) argued that watermelon was initially cultivated by the Spanish along the eastern seaboard before AD 1576 and rapidly spread to Indigenous communities over a wide area during the next decades. Blake asserted that watermelon was rapidly accepted by Indigenous farmers because it could be grown using techniques similar to squash – a food these farmers had been growing for millenia.

In the forty years since Blake published his synthesis, additional archaeological excavations have been conducted at early mission sites and early colonial documents have become more accessible. In this section, we summarize information on the introduction of the watermelon in North America, focusing specifically on the southeastern and southwestern US, locations of early contact between Indigenous communities and Europeans. In both regions, the Spanish mounted multiple exploratory

expeditions prior to the mid 1500s. Large-scale settlement and missionization followed in the early 17th century. Historical documents and archaeological sites indicate that the watermelon was being grown by Indigenous farmers in both regions by the late 1500s (Figure 1).

Figure 1: Distribution of watermelon in North America in the 16th century (add north arrow and scale if possible)



Archaeological and Historical Evidence of Watermelon in the Southeastern United States

Watermelon entered and spread throughout the southeast US at several points in time and along numerous routes during the 16th and 17th centuries (Figure 2). Three primary modes of interaction likely resulted in the dispersal and ultimate adoption of watermelon into Native food systems. Archival and archaeological evidence illustrate the growth of watermelon within Spanish settlements at Santa Elena and St Augustine in the 16th century, as well as within Spanish missions in Apalachee, Guale, and Timucua territories in the 17th century (Blake 1981; Hann 1986; Reitz and Scarry 1985; South 1981:166; Ruhl 1993; Gremillion 1989). Here, watermelon likely dispersed and was adopted vis-a-vis Spanish and Native interactions as other forms of cultural knowledge about food spread between missions and Spanish towns.

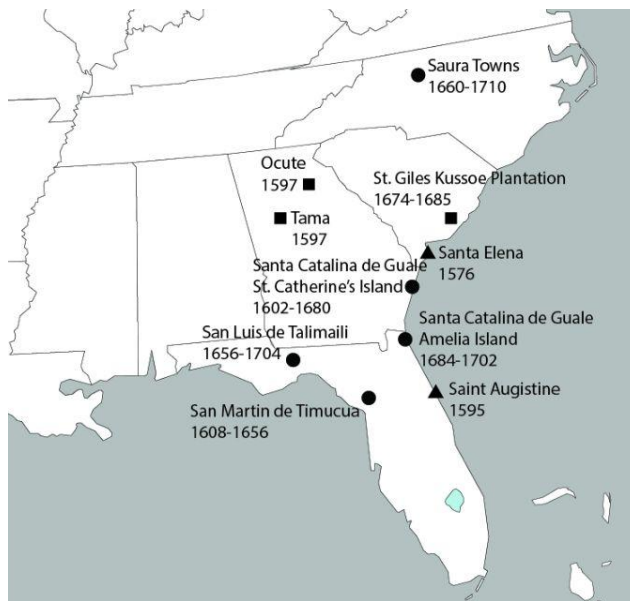
Another mode of watermelon dispersal and adoption occurred via Native trade networks. Despite several 16th century Spanish expeditions into the interior of the Southeast, “watermelons in particular spread so rapidly among the aborigines that they

sometimes outdistanced the explorers themselves” (Swanton 1946:269 CHECK). This is supported by reports of watermelon in the Ocute province of central Georgia in 1597 as well as archaeological evidence from two Saura towns in the North Carolina piedmont in the 17th century (Blake 1981; Gremillion 1995, ADD primarily sources?). At one Saura town on the Dan River, a watermelon seed was found in a feature likely associated with cooking and among large quantities of peach pit, nutshell, and corn cob and kernel that were likely being prepared for a feast (Wilson 1977: 92; Lawson 1967). The presence of watermelon at these interior locales suggests not only that watermelon dispersal outpaced Spanish explorers and European settlement but that the movement of and selection for watermelon seeds occurred in Native facilitated contexts.

Lastly, evidence supports experimentation with watermelon by seventeenth century plantations in the Carolinas as an early attempt to establish staple crops in the colonies. Here, enslaved Native and African peoples would have primarily tended to watermelons. At the seventeenth century Lord Ashley site, a watermelon seed was found alongside an assemblage associated with first generation Africans enslaved on the St. Giles Kussoe plantation (Johanson and Agha 2021). Interactions between enslaved, escaped, and freed Africans and Natives in the southeast resulted in the sharing and at times melding of foodway traditions that overtime become traditional staples of Southern cuisine (Hudson 1976:498).

Since Blake’s 1981 accounting of watermelon adoption in the Southeast, new paleoethnobotanical evidence as well as critical evaluation of disciplinary practices in the region have expanded our understanding of how and where Old World plant adoption occurred. In general, the archaeological record of the 16th and 17th centuries is dominated by work at Spanish missions, Spanish and Euroamerican towns, and trading outposts. Likewise, the archival records that emerge from these locales are shaped by European perspectives, primarily Franciscan priests and military and governmental personnel. Though scholars have long focused on Native life in European accounts and outposts, foodways at historic Native towns continue to be poorly documented. As Scarry and Scarry (2005) argue, gender and cultural biases present in European accounts of Native foodways and anthropological models of food production that dichotomize small-scale, swidden gardens with mono-crop, large scale western systems of farming, obscure what was more likely a mixed crop, shifting system, that in some places in the Southeast occurred at large scales. Additionally, a core challenge in the archaeological documentation of watermelon in the region is the preservation of only charred seed remains. With this in mind, we might consider the broader package of seeds with which watermelon was likely introduced, such as peach and muskmelon, and better attune our methodologies to locate more holistic evidence of Native food systems and adoption of new fruits (e.g. soil phosphate and magnetic susceptibility; Roos and Nolan 2012; Nolan 2014).

Figure 2: Archaeological and Historically Dated References to Watermelon in the Southeastern United States (needs: legend, north arrow, scale)



Archaeological and Historical Evidence of Watermelon in the Southeastern United States

Our second case-study centers on watermelon's grown by Native/Indigenous communities in the U.S. Southwest, particularly within the boundaries of the modern states of Arizona and New Mexico. While we provide some additional context concerning the Spanish expeditions that traversed through Mexico with the goal of establishing missions and colonizing portions of the U.S. Southwest, we acknowledge our more restricted geographic focus provides only a partial survey of Indigenous watermelon histories within Central America and the Greater Southwest. Spanish colonial writers focused largely on documenting exotic foods and economic staples like wheat, complicating the process of tracing how and when watermelons entered the US Southwest ([Dunmire 2004](#)). Watermelons were a part of monastic gardening traditions, however, and documentary evidence indicates watermelons were present in Veracruz before 1580 (Figure 1), and likely much earlier given documentation of melons in Pueblo in 1530 ([Dunmire 2004](#):129).

Rumors of large cities and wealth to the north spurred Spanish expeditions in Mexico to travel north into present day Arizona and New Mexico. In 1540, Coronado under the direction of captain Francisco Barrionuevo traveled north up the Colorado River to reach the fabled "seven cities of Cibola" (Zuni Pueblo). Records indicate they bartered and gifted seeds along this journey, although only wheat is specified ([Lopinot 1986](#):61-62). Espejo in his expeditions in 1582 noted that watermelons were grown by

Indigenous communities near the border of Texas (Lopinot 1986:63). In New Mexico, the next formally sanctioned colonization effort was conducted under the direction of Oñate, who traveled to the Rio Grande area to establish a colonial capital in 1598. Part of the contract specified Oñate had to supply provisions for the expedition including seed for planting at the new colony. Letters by Oñate and his officers note that watermelons were among the crops already grown by Indigenous farming communities by this time (Bolton 1963:170). Oñate established a capital initially near Okay Owingeh which was soon moved to Santa Fe. Throughout this period colonization efforts were explicitly connected to the establishment of missions, and Franciscan priests moved from Santa Fe throughout the U.S. Southwest reaching even as far west as the Hopi Mesas by 1629 ([Dunmire 2004](#):179).

Colonization/mission efforts proceeded slower along the western coast of Mexico, and O'odham communities in northwestern Mexico and southern Arizona directly encountered missionaries beginning in the late 1600s with the arrival of Padre Kino and the establishment of Jesuit missionaries along the present-day Mexican-American border, beginning in 1687 at the Mission Delores ([Castetter and Bell 1942](#):73-74). Padre Kindo was extremely interested in agriculture and explicitly distributed seeds, including watermelons, to local communities. Arguments for the trade and cultivation of watermelon seeds between Indigenous communities with the Northern Mexico and the U.S. Southwest are supported by Padre Kino's writings where he recorded in the fall of 1698 that Tohono O'odham (Papago) villagers were growing watermelons at the village of San Angelo del Botum, "although never in that village or in the others of this vicinity and coast had there entered another white face or Spaniard" ([Bolton 1936](#): 397-401). Mange in 1697 also noted watermelons grown at San Agustin de Oiar, which is near present day Tucson, Arizona ([Castetter and Bell 1942](#):119). Finally, ethnobotanist Amadeo Rea ([1991](#):8) has noted how watermelon and muskmelons were amongst the few introduced foods Akimel O'odham peoples adopted, and that they were amongst the most beloved, "the watermelon and muskmelon...proved so popular that they dispersed northward in advance of the Spaniards themselves."

The archaeological record of the earliest watermelons in the Southwest has improved somewhat since Blake's summary in [1981](#), although there continues to be a need for better directly dated watermelon specimens and for more targeted excavation addressing non-mission contexts (Figure 3). The watermelon seeds at Abo Mission ([Jones 1949](#)) highlighted in [Blake's 1981](#) synthesis remain the only archaeological evidence for multiple (two) varieties of watermelon in the Southwest in the 17th century. That watermelon seeds were recovered from turkey dung deposits suggests they were a common enough table/garden scrap that they were accessible to these important Indigenous domesticated birds; it also speaks to the rapid mixture of Iberian and

Indigenous foodways. In a similar fashion, watermelon seeds (along with peach, wheat, and cantaloupe remains) recovered from adobe brick and household contexts at Awatovi speak to the widespread adoption and production of watermelons much further west around the Hopi mesas in the 17th century (Lopinot 1986:73). Finally, watermelon seeds recovered from Hawikuh ([Smith et al. 1966](#):212-13), identified by Zuni workmen in mortuary and midden contexts, while not directly dated, provide an important non-mission context and support for arguments for local decisions to adopt watermelon, possibly very early (possibly even as early as the Coronado expedition) in the Southwest. Overall, our survey of 17th century archaeological watermelon remains suggests watermelons were quickly incorporated into existing Southwestern Indigenous garden culture and cuisine and used alongside other traditional plant foods.

Figure 3: Archaeological and Historically Dated References to Watermelon in the Southwestern United States (needs: legend, north arrow, scale)



Spread to Other Regions

By the mid to late 17th century, the archaeological and ethnohistorical records document the cultivation of watermelon by Indigenous farmers across the US (Blake 1981; Newsom and Trieu Gahr 2011). Europeans also describe Indigenous farmers raising varieties of watermelon with different flesh and seed colors. For example, Louis Nicolas, a Jesuit priest who traveled from the Gulf of St. Laurence in Quebec to the western edge of Lake Superior between 1664 and 1675, described the cultivation of "very sweet watermelons, some of which are white like milk and have black seeds; others are reddish and have seeds of the same colour." p. 379 of Gagnon, Senior, and Ouellet (2011).

[Newsom and Trieu Gahr \(2011: 571\)](#) argued that traits of specific crops, such as watermelon, wheat, peach, and cowpea, resulted in their rapid acceptance into the existing farming practices of Indigenous farmers. These characteristics are:

1. The weedy life strategy of the crops so that they require little human intervention once established
2. The ability of the crops to adapt to local growing conditions and fit within the seasonal cycle of agricultural labor
3. The physical similarities with plants already cultivated by Indigenous farmers
4. The ability to produce high yields with low costs, along with storability
5. That these crops supplemented the foods already grown

These factors were important in the initial attempts to grow these crops. However, social factors were essential for these crops to be incorporated into the foodways and traditions of Indigenous communities.

Watermelon in Indigenous Communities: Seed Keeping, Use, and Names

To explore how watermelon transitioned from a novel crop to an important part of Indigenous food traditions, we compiled information on the context of watermelon cultivation and use from ethnohistoric and ethnobotanical sources. We gathered information related to the traits selected by Indigenous seedkeepers, the various ways that the watermelon was used, and Indigenous words and stories about the watermelon. We focus on information from the southeast and southwestern US, and our review is not exhaustive.

Saving Watermelon Seeds

Once Indigenous farmers began to cultivate the watermelon, they saved seeds from plants that grow well under local conditions and with characteristics that they found desirable. For example, the watermelon grown by the O'odham groups in the Sonoran desert of southern Arizona are known for being drought tolerant. Indigenous farmers also cultivated a diversity of types of watermelon. The Hopi grew a red/brown seeded watermelon with red flesh as well as one with yellow flesh.

Numerous historical accounts and ethnobotanical studies comment on the sweetness of the watermelon varieties cultivated by Indigenous communities throughout North America. For example, Le Page du Pratz (1763) wrote a detailed description of the varieties of watermelon grown by the Natchez in the lower Mississippi River Valley in the early 1700s. One variety he described as pale green with white spots and a tart white rind. The flesh was

a light and sparkling substance, that may be called for its properties a

rose-coloured snow. It melts in the mouth as if it were actually snow, and leaves a relish like that of the water prepared for sick people from gooseberry jelly. This fruit cannot fail therefore of being very refreshing, and is so wholesome, that persons in all kinds of distempers may satisfy their appetite with it, without any apprehension of being the worse for it. The water-melons of Africa are not near as relishing as those of Louisiana (p. 9-10).

The historic accounts and ethnobotanical reports also contain multiple descriptions of the storability of watermelon varieties grown by Indigenous farmers. In the Southwest, watermelons are regularly harvested in the late summer or early fall. Hopi, Zuni, Havasupai, O'odham farmers described how they stored watermelon into the winter months by hanging them in store rooms or burying them in sandy areas. In contrast to native plants that produced sweet foods, such as cactus fruits or berries, watermelon required little processing or preparation for storage (Diehl et al 2019:179-180).

The process of seed saving created plants that were adapted to local growing conditions. Seedkeeping also rapidly transformed the watermelon from a novelty crop introduced in initial colonial encounters to a food cared for and nurtured by communities.

Watermelon use

Although watermelon quickly became a beloved food in many Indigenous communities, it was more than a sweet treat. Watermelon seeds were also used. Some groups roasted them to consume as snacks or further processed them into butters (e.g., Smithson 1959:150; Whiting 1939:92). Others used their oils to season cooking implements. For example, the oil from watermelon seeds were often used by the Hopi to season the stones used to make a traditional flatbread, called *piiki* (Whiting 1939:92).

Watermelon was and is commonly used for medicinal purposes. In the southwest rinds from ripe and unripe watermelons were used for a variety of conditions, especially stomach ailments and fevers by Zuni and O'odham communities (Pfefferkorn 1989:57-58; Stevenson 1904:389-390). In the Southeast, Cherokee (Hamel and Chiltoskey 1975:61) and Chickasaw (Taylor 1940:59) crushed watermelon seeds to create a tonic, typically for kidney problems.

Watermelon was regularly offered to visitors when they arrived in a village. For example, Stephens described Hopi women in the late 1800s offering a large delegation of Zuni visitors watermelon, muskmelon, and peaches when they arrived at the First Mesa villages (Parsons 1969: 943) In the Southwest, watermelons were and continue to be a common food given away in the plazas at ceremonies. Stevenson (1904: 223,

247) describes watermelon fruits and seeds being an important part of winter ceremonials and feasting at Zuni Pueblo, with over 300 watermelons brought in by the community for plaza dances.

Watermelon is also commonly associated with pueblo clowns, called Koyaala or Koshari at Hano, the Tewa village on First Mesa (Arizona), and Koosa for the Tewa speaking Rio Grande pueblo tribes in New Mexico. In artistic depictions, these clowns are commonly shown eating watermelon and evoke an overindulgence in food. The role of the clowns in pueblo dances is to perform unacceptable behaviors as a public commentary on what is proper.

Indigenous words and stories about the watermelon

The act of naming further illustrates the ways that watermelon was adopted into the food traditions of Indigenous communities across the US. Although many groups use the Spanish words sandia, melón or a variation of these words for watermelon, others have given it a name in their language. The translation of these names emphasizes two broad meanings. The first emphasizes similarities to other plant foods and the second references the way watermelon was eaten ([Table 1](#)). For many southwestern groups, their name for the watermelon includes the word pumpkin or squash, which Indigenous farmers grew prior to the introduction of the watermelon. For some communities, the name includes a reference to the Spanish or Mexican or the horse, another Spanish introduction. In many other Indigenous languages the word for watermelon refers to how it is eaten, either raw or at any time. A meaning that could also be emphasizing that watermelon did not require preparation, until squash, which most commonly cooked.

ADD: discussion of the role of watermelon in traditional knowledge (stories about the the origins of the watermelon: Navajo and Hopi; Zuni as younger sister to squash) and month name in calendar, Natchez)

ADD conclusion to this section

Indigenous Watermelon Seedkeepers today

Knowing the deep history of the watermelon from its origins in Africa through its colonial migrations and its acceptance into many Indigenous communities is important for discussions of Indigenous food and seed sovereignty today since "the seed is the plant's memory of how to live well in this place" (Peña 2019: 276).

Indigenous communities in the southeastern and southwestern US were introduced to watermelon during early encounters with Europeans. Within a century (or the equivalent

of four generations), watermelon was grown by Indigenous farmers throughout the US. Given the long history and early acceptance of the watermelon, it reflects a food that was embraced by communities prior to the devastation of their foodways by colonial-settlers. As Indigenous farmers saved seeds, they encouraged characteristics that helped the watermelon grow in its new home and transformed it from a novelty to a much celebrated food. In this way, the watermelon became part of the family of foods that helped sustain Indigenous communities, not only nutritionally but also culturally.

Today, many Indigenous farmers continue to steward heirloom varieties of watermelon. For example, Hopi and Navajo have red, and yellow fleshed watermelon with seeds of various colors. The Zuni Sustainable Food Program ([Eriacho et al. 1994](#)) lists white, yellow, and red fleshed traditional varieties. The Potawatami of the Great Lakes, who the Caddo and Mucogee referred to as the “watermelon people” (Swanton 1935), have brown seeded watermelons that can be easily stored for months. These heirloom varieties were created with the knowledge and skills of Indigenous farmers. For other communities, the seeds are no longer grown by community members, but knowing the deep history of the seeds their ancestors grew may help revive and revitalize the traditions related to watermelons in their communities.

Oftentimes, preserving seeds is argued to be vital for the biodiversity of foods, but for Indigenous communities, heirloom seeds represent resilience. They are a source of cultural and sometimes economic preservation in the face of colonial processes that continue to threaten living traditions today. The many varieties of watermelon grown today and stored in museum facilities illustrate a wide range of local adaptations as the fruit became incorporated into Native food traditions. From our synthesis, it is apparent that the economic and oftentimes male focus of colonizers and academics alike frequently devalue “garden foods” (often the domain of women) and come up short in speaking to why watermelon was so quickly adopted and how it became such a beloved “staple” food in many Native communities. In addition, many archaeological plant and ethnobotanical collections are often understudied and inaccessible to communities of origin, while much archaeological attention continues to focus on missions rather than important examples of survivance and adaptation within Native communities beyond the mission system. Scholars working with museum collections must help bridge the disconnects between Indigenous communities and the knowledge of the seeds we study and steward. We must also work to bring more attention to the many food connections built between Native and African descendant communities in multiple colonial contexts.

Citations that are not hyperlinked in the text

Gagnon, François-Marc, Nancy Senior, and Réal Ouellet (editors)

2011 *Codex Canadensis and the Writings of Louis Nicolas: The Natural History of the New World, Histoire Naturelle des Indes Occidentales*. McGill-Queen's University Press, Montreal, Quebec.

Le Page du Pratz, Antoine Simon

1763 *The History of Louisiana, or of the Western Parts of Virginia and Carolina: Containing a Description of the Countries that Lye on Both Sides of the River Mississippi: With an Account of the Settlements, Inhabitants, Soil, Climate, and Products*. Translated from the French of M. Le Page du Pratz; with Some Notes and Observations Relating to Our Colonies, Vol. 2. T. Becket and P. A. De Hondt, 1763, London, England.

Lopinot, Neal H.

1986 The Spanish Introduction of New Cultigens into the Greater Southwest. In *New World Paleoethnobotany: Collected Papers in Honor of Leonard W. Blake*, edited by Robert T. Bray, pp. 61-84. The Missouri Archaeologist Volume 47. Missouri Archaeological Society, Columbia.

Maples, Shiloh. "She Makes an Offering." *Spirit Plate*, episode 1, January 24 2022. <https://www.whetstonemagazine.com/spirit-plate/episode-1-she-makes-an-offering>.

Parsons, E.W.C. ed.

1969. *Hopi Journal of Alexander M. Stephen Part 2*. Columbia University Press.

Peña, Devon

2019 On Intimacy with Soils: Indigeneous Agroecology and Biodynamics. In *Indigenous Food Sovereignty in the United States: Restoring Cultural Knowledge, Protecting Environments and Regaining Health*, edited by Devon A. Mihesuah and Elizabeth Hoover, p. 276-299. University of Oklahoma Press, Norman.

Pfefferkorn, Ignaz

1989 *Sonora: A Description of the Province*. University of Arizona, Tucson.

Swanton, John R.

1935 "Michigan" *The Indian Tribes of North America*. (Smithsonian Institution, Bureau of American Ethnology Bulletin 145. Government Printing Office.

Stevenson, Matilda C.

1904 *The Zuñi Indians: Their Mythology, Esoteric Fraternities, and Ceremonies*. Annual Report of the Bureau of American Ethnology, 1901-1902, 23. Smithsonian Institution, Washington, D.C.

Whiting, Alfred E.

1939 *Ethnobotany of the Hopi*. Museum of Northern Arizona Bulletin no. 15, Museum of Northern Arizona, Flagstaff.