Supporting Information

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SI Text

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Table S1. The Uto-Aztecan language family

Uto-Aztecan

Northern Uto-Aztecan
- 1. Numic
  - 1.1. Western Numic
    - 1.1.1. Mono
    - 1.1.2. Northern Paiute
  - 1.2. Central Numic
    - 1.2.1. Panamint
    - 1.2.2. Shoshoni
    - 1.2.3. Comanche
  - 1.3. Southern Numic
    - 1.3.1. Ute
    - 1.3.2. Kawaiisu
- 2. Tubatulabal
- 3. Hopi
- 4. Takic
  - 4.1. Serrano
    - 4.1.1. Serrano
    - 4.1.2. Kitanemuk
  - 4.2. Gabrielino-Fernandeño
  - 4.3. Cupan
    - 4.3.1. Cahuilla
    - 4.3.2. Luiseño
    - 4.3.3. Cupeño

Southern Uto-Aztecan
- 5. Tepiman
  - 5.1. Upper Pima
  - 5.2. Lower Pima
  - 5.3. Northern Tepehuan
  - 5.4. Southern Tepehuan
- 6. Ópatan
  - 6.1. Ópata
  - 6.2. Eudeve
- 7. Tarahumaran
  - 7.1. Tarahumara
  - 7.2. Guarijio
- 8. Cahitan (Yaqui–Mayo)
- 9. Tubar
- 10. Corachol
  - 10.1. Cora
  - 10.2. Huichol
- 11. Aztecan
  - 11.1. Pochutec
  - 11.2. General Aztecan
    - 11.2.1. Nahuatl
    - 11.2.2 Pipil

Table S2. Directly dated maize older than ≈1400 cal. B.C. (3100 ^{14}C yr b.p.)

^{14}C Lab number	Site	Location	^{14}C yrs B.P.	δ^{13}C ‰	Calibrated date (2 σ and median) (refs. 1, 2)	Ref.
Beta-185023	Old Corn	Colorado Plateau, NM	3,810 ± 50	−10.9	2460–2060 B.C. (2260 B.C.)	(3)
Beta-185022	Old Corn	Colorado Plateau, NM	3,760 ± 50	−10.6	2350–2030 B.C. (2180 B.C.)	(3)
Beta-185026	Old Corn	Colorado Plateau, NM	3,730 ± 40	−8.9	2280–1990 B.C. (2130 B.C.)	(3)
Beta-185024	Old Corn	Colorado Plateau, NM	3,710 ± 50	−9.1	2280–1960 B.C. (2100 B.C.)	(3)
Beta-179558	Old Corn	Colorado Plateau, NM	3,680 ± 40	−11.1	2200–1950 B.C. (2070 B.C.)	(3)
Beta-185025	Old Corn	Colorado Plateau, NM	3,700 ± 50	−9.7	2270–1950 B.C. (2090 B.C.)	(3)
Beta-185027	Old Corn	Colorado Plateau, NM	3,660 ± 50	−10.5	2200–1900 B.C. (2040 B.C.)	(3)
Beta-179557	Old Corn	Colorado Plateau, NM	3,660 ± 40	−10.9	2190–1930 B.C. (2040 B.C.)	(3)
Beta-179496	Old Corn	Colorado Plateau, NM	3,640 ± 40	−10.2	2140–1900 B.C. (2010 B.C.)	(3)
Beta-178616	Old Corn	Colorado Plateau, NM	3,620 ± 40	−10.2	2140–1880 B.C. (1980 B.C.)	(3)
CAMS-43177	McEuen Cave	East Central AZ	3,690 ± 50		2270–1940 B.C. (2080 B.C.)	(3–5)
Beta-175842	Clearwater, Congress St. Locus	Tucson Basin, AZ	3,690 ± 40	−10.9	2200–1960 B.C. (2080 B.C.)	(6)
Beta-160381	Clearwater, Congress St. Locus	Tucson Basin, AZ	3,650 ± 40	−10.4	2140–1910 B.C. (2020 B.C.)	(6)
Beta-148409	Las Capas	Tucson Basin, AZ	3,670 ± 40	−10.6	2200–1940 B.C. (2050 B.C.)	(7)
Beta-26275	Three Fir Shelter	Colorado Plateau, AZ	3,610 ± 170		2470–1540 B.C. (1990 B.C.)	(8)
AA-13257	Square Hearth	Tucson Basin, AZ	3,505 ± 65	−10.0*	2020–1680 B.C. (1830)	(9)
AA-9317	Lukachukai	Colorado Plateau, AZ	3,455 ± 45		1890–1640 B.C. (1780 B.C.)	(10)
AA-9319	Lukachukai	Colorado Plateau, AZ	3,135 ± 45		1500–1300 B.C. (1410 B.C.)	(10)
CAMS-34923	Los Pozos, East Locus	Tucson Basin, AZ	4,050 ± 50†	−10.0*	2860–2470 B.C. (2590 B.C.)	(11)
Beta-124111	Los Pozos, Sweetwater Locus	Tucson Basin, AZ	3,340 ± 60	−10.7	1770–1460 B.C. (1630 B.C.)	(11)
Beta-124114	Los Pozos, Sweetwater Locus	Tucson Basin, AZ	3,300 ± 80	−10.4	1770–1420 B.C. (1590 B.C.)	(11)
Beta-124113	Los Pozos, Sweetwater Locus	Tucson Basin, AZ	3,230 ± 50	−10.3	1620–1420 B.C. (1500 B.C.)	(11)
Beta-124112	Los Pozos, Sweetwater Locus	Tucson Basin, AZ	3,140 ± 50	−10.7	1520–1300 B.C. (1420 B.C.)	(11)
GX-12720	Tornillo Shelter‡	San Andres Mtns, NM	3,175 ± 240		2140–910 B.C. (1510 B.C.)	(12)
AA-28496	Valley Farms	Tucson Basin, AZ	3,145 ± 50		1520–1300 B.C. (1420 B.C.)	(13)
NSRL-12484	Cerro Juanaqueña	NW Chihuahua	3,130 ± 55	−10.7	1510–1270 B.C. (1405 B.C.)	(14)
AA-34173	San Luis de Cabezon	Northern Rio Grande, NM	3,125 ± 45	−9.4	1500–1300 B.C. (1400 B.C.)	(15)
A-4187	Bat Cave	Mogollon Highlands, NM	3,740 ± 70§		2430–1950 B.C. (2150 B.C.)	(16)
A-4188	Bat Cave	Mogollon Highlands, NM	3,120 ± 70		1600–1130 B.C. (1390 B.C.)	(16)

*Assumed.
†Ref. 11 questioned this date.
‡Combined sample.
§Ref. 16 questioned this date.

Table S3. Directly dated macrofossils of other cultigens: pepo squash, grain amaranth, common bean, bottle gourd, and cotton

Cultigen	Number	Site	Location	^{14}C Yrs B.P.	Calibrated Date (2 σ and median) (refs. 1, 2)	Ref.
Cucurbita pepo	A-4186	Bat Cave	Mogollon Highlands, NM	2,980 ± 120	1490–910 B.C. (1200 B.C.)	(16)
Cucurbita pepo	A-4182	Bat Cave	Mogollon Highlands, NM	2,630 ± 90	1000–420 B.C. (790 B.C.)	(16)
Cucurbita pepo	A-3388	Sheep Camp Shelter	Colorado Plateau, NM	2,900 ± 230	1680–540 B.C. (1120 B.C.)	(17)
Cucurbita pepo	A-3159	Sheep Camp Shelter	Colorado Plateau, NM	2,220 ± 290	980 B.C.–A.D. 400 (300 B.C.)	(17)
Cucurbita pepo	A-4178	Tularosa Cave	Mogollon Highlands, NM	1,900 ± 70	50 B.C.–A.D. 320 (A.D. 110)	(16)
Amaranthus cruentus	Beta-172104	High Rolls	Sacramento Mtns, NM	2,640 ± 40	900–770 B.C. (810 B.C.)	(18)
Phaseolus vulgaris	A-4179	Tularosa Cave	Mogollon Highlands, NM	2,470 ± 250	1260 B.C.–A.D. 20 (590 B.C.)	(16)
Phaseolus vulgaris	A-4184	Bat Cave	Mogollon Highlands, NM	2,140 ± 110	400 BC.–AD 80 (180 B.C.)	(16)
Phaseolus vulgaris	AA-6407	Fresnal Shelter	Sacramento Mtns, NM	2,085 ± 60	350 B.C.–A.D. 50 (110 B.C.)	(19)
Phaseolus vulgaris	AA-6405	Fresnal Shelter	Sacramento Mtns, NM	2,015 ± 65	190 B.C.–A.D. 120 (30 B.C.)	(19)
Phaseolus vulgaris	AA-6404	Fresnal Shelter	Sacramento Mtns, NM	1,955 ± 55	90 B.C.–A.D. 210 (A.D. 40)	(19)
Lagenaria siceraria	None	Cordova & Tularosa Caves	Mogollon Highlands, NM	Dated by association	est. 300 B.C.	(20)
Gossypium hirsutum	AA-13690	Eagle Ridge	Tonto Basin, AZ	1,725 ± 65	A.D. 130–510 (A.D. 310)	(21)