

**Supplementary Table 1.** Examples of heirloom cultivars of bean, maize and rice.

Number and type of heirloom cultivars maintained by farmers/home-gardeners	Reference
<b>Bean</b>	
'Hutterite Soup', Jacob's Cattle', Koronis Purple', 'Tiger's Eye'	1
'Aunt Sal Purple Pod', 'Grandma Barnett'	2
'Caparrona' ('Caparrona de Monzón')	3
Twenty-six folk cultivars originating from 12 landraces, including most popular cultivars such as 'Séssé', 'Akpakoun vovo', 'Kapalakoun Kpikpa', 'Kapankoui rouge'	4
Seventeen heirloom cultivars, including 'Jacob's Cattle Gold', 'Lina Cisco's Bird Egg', 'Peregrin', 'Tiger's Eye'	5
One hundred and one heirloom cultivars, including 'Greasy Cutshort', 'Tender October', 'Pink Tip', 'Peanut', 'Lazywife', 'Turkey'	6
'Brown Bunch', 'Big Greasy'	7
Four hundred eighty-five heritage and heirloom cultivars, including 'Noble Bean (also known as fall or October bean)'	8
'Cherokee Trail of Tears Pole', 'Christmas Lima', 'Greasy Cutshort Pole', 'Jacob's Cattle', 'Jackson Wonder Bush', 'Rattlesnake Pole', 'Snow on the Mountain', 'Tongues of Fire'	9
'Tavella Brisa Crosca'	10
Thirty-three heirlooms classified as 'Bunch beans', 'Half-runner beans', 'Corn-field beans', 'Butterbeans', 'Pole beans', 'Cutshort beans', 'Greasy beans', 'Shelly beans', 'Lazywife beans', 'Speckled beans', 'Pollinator beans', 'October beans'	11
Seventy folk (landraces) cultivars adopted at altitude ranging from 40 to 1100 m asl	12
Twenty-one landraces, including 'A'Marozzo', 'Castelluccisa', 'Corneola', 'Fagiolo bianco', 'Tondino bianco', 'Riso bianco'	13
'Ganxet'	14
<b>Maize</b>	
'Cometico', 'Conejo', 'Tehua', 'Zapalote Grande', 'Zapalote Chico'	15
Twenty-eight heirloom cultivars, including 'Hickory King', 'Wild Goose'	6
Black-seeded native landrace efficient in capturing P under low soil P conditions	16
'Coxs Special Field Corn', 'Cherokee Yellow-flour Corn', 'Cherokee Yellow-pearl Hominy Corn', 'Cherokee White-flour Corn'	7
Forty-seven heritage and heirloom cultivars, including 'Texas Gourdseed', 'Virginia White Gourdseed', 'Carolina Gourdseed White', 'Kentucky Butcher', 'Pungo Creek Indian', 'Cherokee White Flour'	8
'Golden Bantam', 'Country Gentleman', 'Stowell's Evergreen', 'Bloody Butcher', 'Strawberry Popcorn'	9
Tropical landraces more efficient in utilizing available N under limited N-levels	17
<b>Rice</b>	
Over 100 heirlooms from North East India, including 'Krishna Bhog', 'Brimphul', 'Kalanunia'	18
233 folk cultivars	19
Eighteen folk cultivars including 'Chhatoki', 'Chhoeamara', 'Mayamati', 'Khoibaruah', 'Kaala Birain', 'Pakhi Birain', 'Berapua', 'Baigon bichi', 'Kartika'	20
'Jumli Marsi', 'Anadi', 'Jhinuwa', 'Hattipow', 'Panoramukhe', 'Ujarka'	21
'Bhama', 'Danigora', 'Karhani', 'Kalamdani', 'Ramdi', 'Muru', 'Hindmauri', 'Punaigora', 'Karanga', 'Jonga-Sirhati', 'Maharaji', 'Bora', 'Danwar', 'Bhejri', 'Karhani', 'Layacha',	22

'Gudna', 'Jonga-Sirhati', 'Bhejri', 'Pakheru', 'Saraiphool', 'Karia Gora', 'Dani Gora', 'Punai Gora'

'Jugal' (double grain rice), 'Sateen' (triple-grain rice), 'Kelas', 'Bhutmoori', 'Pichha vari', 23-24  
Karthigai samba', 'Dudhsar', 'Kelas', 'Bhutmoori', 'Bhutmoori', 'Bombai mug', Kalo  
gorah', 'Rangi', 'Kaya', 'Kelas', 'Noichi', 'Jabra', 'Harma nona', 'Sada jabra', 'Lakshmi-  
dighal', 'Banya-sal', 'Jal kamini', Kumrogoh', Ganga siuli', 'Kalsputia', Baish-bish', 'Getu',  
'Matla', 'Nona bokra', 'Talmugur', 'Kalo nunia', 'Kartik-sal', 'Tulsi manjari', 'Bishnubhog',  
'Rani kaja', 'Khudi Khasa', 'Loha gorah', 'Malabati', 'Sada dhepa', 'Sindur mukhi', 'Kakua',  
'Kaya', 'Nata'

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**Supplementary Table 2.** Examples of heirloom cultivars of carrot, potato, squash, and tomato.

Number and type of heirloom cultivars grown and maintained by home-gardeners/heritage seedbanks	Reference
<b>Carrot</b>	
'Saint Ippazio' (or Tiggiano carrot)	25
'Carota di Polignano'	26
'Yellow-purple Polignano'	27
<b>Potato</b>	
500 heirlooms from North America differing in tuber shape (round-, oblong-, fingerling-shaped), skin (white, red, purple, variegated) and flash (white, yellow, purple) color	28
'Early Rose', 'Green Mountain'	11
<b>Squash</b>	
'Shishigatani'	29
'Arikara', 'Banana', 'Boston marrow', 'Buttercup', 'Candy Roaster', 'Hubbard', 'Jarrahdale', 'Lakota', 'Nanticoke', 'Turk's turban' (also known as French turban),	30
Twenty-four heirloom cultivars including 'Candyroaster', 'Cushaw', 'Sugar Pumpkin'	6
'Roughbark Candyroaster'	7
Thirty heritage and heirloom cultivars, including 'Roughbark Candyroaster Squash'	8
'Connecticut Field', 'Cushaw Green-Striped Squash', 'Rouge Vif d'Etampes', 'Small Sugar'	9
'Candyroaster', 'Cushaw', 'Crookneck'	11
<b>Tomato</b>	
'Corbarino', 'Lucariello'	31
'Liscio da Serbo Toscano', 'Rosso di Pitigliano', 'Quarantino ecotipo (ec.) Valdarno',	32
'Fragola', 'Canestrino di Lucca', 'Costoluto fiorentino', 'Giallo di Pitigliano', 'Pisanello'	
'Regina tomato' (long shelf-life and rich in antioxidants)	33
'Negro Yeste' and 'Verdal', with former characterized by its dark-red colored fruits than the latter	34
'Estrella', 'Moradeta', 'Punteta', 'UIB-2-70', 'BGIB-018', 'BGIB-107', and 'BGIB-198' with long shelf life carrying the <i>a/c</i> mutation	35
Andean landraces: Accessions 572 scored high for taste, 3806 for high aroma, 572 and 557 for sweetness, 572 identified as not acidic while 4750 and GPEA as with acidic taste	36
Fifteen landraces differing in fruit shapes with round/elongate types rich in glycoalkaloids, while flattened types in phenolic compounds and glutamic amino acid	37
Forty-four heirloom cultivars, including 'Stripey', 'Red Oxheart'	6
'Arkansas Traveler—the original', 'Cherokee Purple', 'Kentucky Beefsteak', 'Manulucie', 'Persimmon Orange'	38
Eighty-five heritage and heirloom cultivars	8
'Brandywine', 'Cherokee Purple', 'Georgia Streak', 'Yellow Pear', 'Arkansas Traveler', 'Mortgage Lifter'	9
Eight heirloom cultivars classified as 'Striped German' and 'Brandywine'	11
Heirloom cultivars (55) with unique fruit and quality characteristics differing in fruit color (white-ivory, yellow, orange, red, black), fruit weight (Large, ≥55 g; Cherry, <30 g; Cocktail, 30-55 g), fruit shape (flattened, rounded, heart-shaped, elongated, pyriform), firmness, total soluble solid (TSS), titratable acidity (TA), TSS/TA ratio, flavor intensity and ascorbic acid	39

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