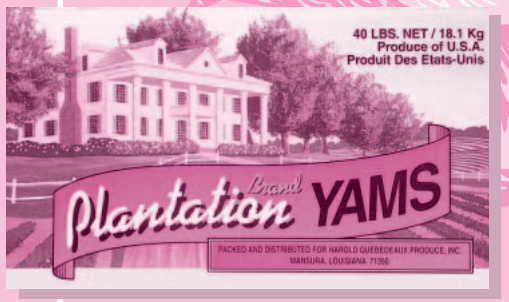
Sweetpotato Packing-Box Art (side panels)

The PlayBoy brand used for North Carolina sweetpotatoes has been used since 1942 (no connection to the later established, similarly named magazine). The brand derives from the "classy kind of guy" image of the Wayne E. Bailey Produce Co.'s two founders.

Chef's Pride brand of Harold Quebedeaux Produce, Inc. Louisiana-produced jumbo sweetpotatoes.

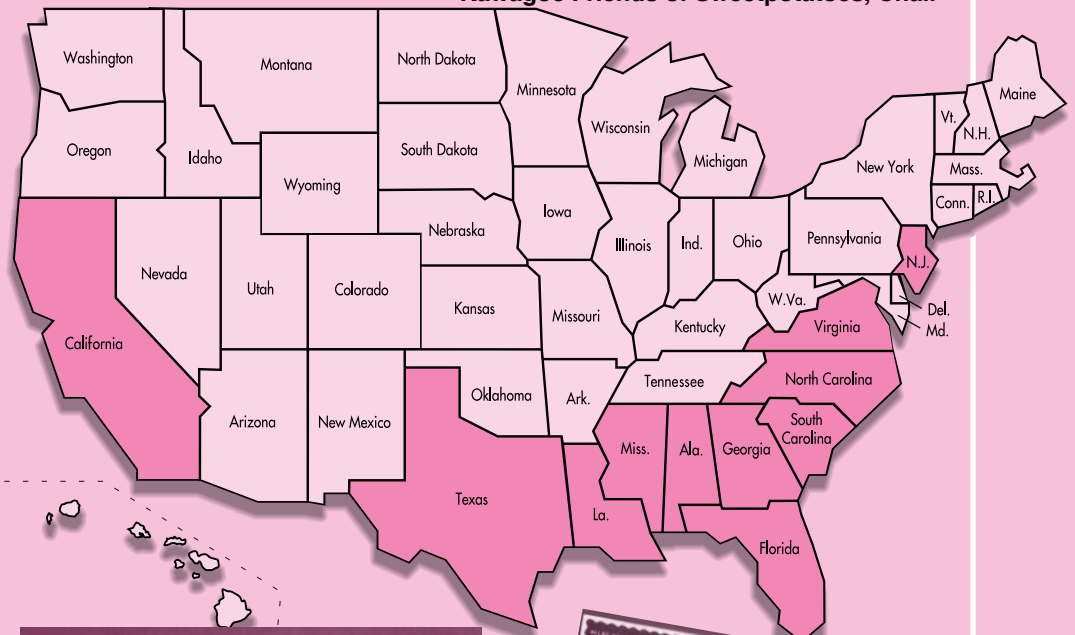


This design recalls a traditional image of the South as popularized in ***Gone with the Wind***. Harold Quebedeaux Produce, Inc. brand, Louisiana.

Vardaman, Mississippi, produced sweetpotatoes. This town's sweetpotato festival is introduced in the article, "Sweetpotato Festivals" (p. 40).

The Other Potato
Sweetpotatoes in the USA

by Barry Duell
Tokyo International University, Professor
Kawagoe Friends of Sweetpotatoes, Chair



"Sweet Carolina" is a sweetpotato brand from the top producing state, North Carolina.

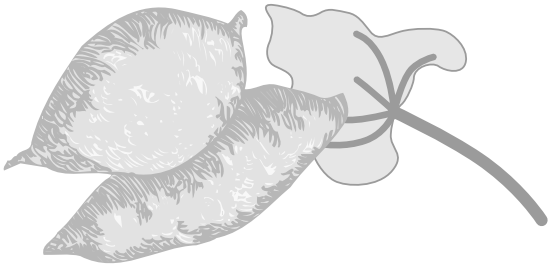
"Southern Belle" evokes an ideal of feminine beauty and grace (achieved through eating sweetpotatoes?). Brand name of Harold Quebedeaux Produce, Inc., Louisiana.

This limited edition funded by
The Foundation for Development of Root and Tuber Crops (Japan)

The Other Potato

Sweetpotatoes in the USA

by Barry Duell



Kawagoe, Saitama, Japan

Barry Duell

The Other Potato: Sweetpotatoes in the USA

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Table of Contents

Cover:
Map- USA primary sweetpotato-growing states are colored dark orange. Refer to "Map and Statistics: Sweetpotato and Potato at a Glance" (p. 6).
Photos- Side panels from sweetpotato packing-boxes (18 kg/40 lb). Refer to "Sweetpotato Packing-Box Art" (p. 5).

Foreword

Little-Known Aspects of Sweetpotato in the USA

Hiroshi Inoue
Curator, Sweetpotato Museum
Kawagoe City, Saitama Prefecture, Japan

Barry Duell (USA) has lived in Kawagoe City, Japan, for more than 20 years, and teaches English and Cultural Anthropology at Tokyo International University.

Duell chose the study of sweetpotato as a way to better understand his adopted town, Kawagoe, due to that crop's association with this town from times past.

Sweetpotato has many interesting aspects. Studying it in relation to Kawagoe led Duell to learn about sweetpotato's role in Japanese and other countries' cultures.

The International Society for Tropical Root Crops is an important academic society associated with sweetpotato, a plant of tropical origin. Duell has been attending this society's symposium that meets triennially in different countries, joining with other experts to promote understanding of tropical root crops. A person such as this is eagerly welcomed as someone who could write an easy to understand book about sweetpotato in the USA.

Two sweetpotato organizations in Kawagoe are the grassroots "Kawagoe Friends of Sweetpotatoes" and the "Kawagoe Sweetpotato Products Promotion Board." Eiji Yamada, manager of both groups, planned the production of the Japanese edition of this book. Kawagoe's sweetpotato groups have taken the lead in promoting understanding of sweetpotato's role in Japan's culture, so it is with pride that we welcome the Japanese edition of this book about sweetpotato in the USA.

May this book prove useful to its many readers.

translation of the Foreword from the 1999 Japanese edition of this book, *Amerika Satsumaimo Jijou*

Acknowledgements

This little book introduces various aspects of sweetpotatoes in the USA. Though a very minor crop that plays only a small role in the diet of most Americans, there are, nonetheless, aspects of US sweetpotatoes introduced here that will hopefully be of interest to the reader. This book is a revision and translation of ***Amerika satsumaimo jijou*** which was published in Japanese in March 1999.

The author wishes to thank the many people and organizations which have contributed to the making of this book. For valuable information and photos, thanks go to Mike Cannon (Louisiana State University), Christopher Clark (Louisiana State University), L.J. Duplechain (Louisiana Sweetpotato Commission), Gilmer Chamber of Commerce (Texas), Velera Jones, Don LaBonte (Louisiana State University), Livingston Chamber of Commerce (California), Velma Duell McConnell, and Ocilla Chamber of Commerce (Georgia).

For much constructive information, thanks also go to Sheryl Badeaux (Louisiana Yambilee Organization), George Wooten (Wayne E. Bailey Produce, Inc., North Carolina), Scott Bissette (North Carolina Department of Agriculture and Consumer Services), Pat Daugereaux (Church Point, Louisiana, Rod's Supermarket owner), Gary Hamaguchi (Livingston, California, sweetpotato farmer), Deborah Hathaway (North Carolina Yam Festival organizing committee), Sue Johnson-Langdon (NC Sweetpotato Commission, Inc.), Blaine Joubert (Church Point, Louisiana, sweetpotato farmer), Stanley J. Kays (University of Georgia), Wayne McLaurin (University of Georgia, and National Sweetpotato Collaborators Group), Tom Nakashima (Livingston, California, sweetpotato farmer), Harold Quebedeaux (Harold Quebedeaux Produce, Inc., Louisiana), Jonathan Schultheis (North Carolina State University), Bill Weir (University of California), and Karen Wright (Vardaman Sweetpotato Festival Committee, Mississippi).

Thanks go to my parents, Cal and Velma McConnell, and my brothers, Gary, Bart and, Kevin, for advice in naming this book.

The above people and organizations have put up with answering my end-

less questions, helping this book more accurately portray the situation of sweetpotato in the USA. The author apologizes for inadvertently leaving out the names of any parties to whom due credit should be given.

The concept for this book grew out of my having grown up in the USA, but having lived many years in Kawagoe City (in Saitama Prefecture, Japan) which has a strong sweetpotato image. Eiji Yamada, Business Manager of the Kawagoe Friends of Sweetpotatoes, suggested and encouraged the writing of the Japanese edition of this book, and was heavily involved in its design. Hiroshi Inoue, Kawagoe Sweetpotato Museum Curator, was involved in editing the contents of the Japanese edition to ensure the book would be of interest to the lay reader. Thanks go to these two for their help in creating the original Japanese edition of this book, upon which this English edition is based. Thanks go, too, to the staff at Spoon for their designing and printing this book.

The author takes responsibility for the entire contents of this book. Care has been taken to accurately portray the situation of sweetpotato in the US, but should the reader find errors, please kindly inform this author.

All photos are by the author unless otherwise noted.

The author welcomes comments.

Barry Duell
July 2000

by Eiji Yamada
(***Imo*** in Japanese refers to sweetpotato, as well as other tubers)

Sweetpotato Packing-Box Art

Sweetpotato box art began in the late 19th century. To safely ship produce to the Eastern Seaboard, California shippers started putting produce in wooden boxes. To appeal to the buyers, California and other shippers began putting colorful lithographed labels on their boxes. In the case of sweetpotatoes, a box contained 50 lb (about 23 kg) and had a 23 cm x 23 cm (9 in x 9 in) paper label. (See <p. 23>)

The main label printing firms were in San Francisco, California, with some others in the Southeast. A label's complexity varied according to the budget of the farmer and shipper. The simplest sweetpotato label might only contain the text "sweetpotato" along with the brand name, farmer or shipper's contact information, box weight, grade, and so on. A costlier label might have several colors with an appealing design. These labels hint at the trends of the time.

From the 1950s, cardboard boxes gradually replaced wood ones which finally disappeared in the early 1970s. Instead of a special label that was printed for pasting on a wood box, labeling was printed directly on all sides of cardboard boxes. For sweetpotatoes, these new boxes hold 18 kg (40 lb) with dimensions 25 cm (H) x 43 cm (W) x 32 cm (D) (10 in x 17 in x 13 in). (See Cover and <p. 11>)

Unfortunately, sweetpotato box art can usually only be appreciated by wholesale buyers. Retail merchants prefer to unpack sweetpotatoes for displaying to customers, discarding the artistic boxes.

Reference:
Medley, R. John, Jr., ***Images of the Sweetpotato, An American Art Form***, Oracle, Arizona, USA, 1994.

Map and Statistics
Sweetpotato and Potato at a Glance

Sweetpotato

Acreage (1997)
- 31,310 ha (77, 380 ac)
- grown mostly in the South

Main growing state
- North Carolina

Annual per capita supply
- 1.9 kg (4.2 lb)
  (FAO 1994-98 average)

Popular ways of eating
- baked, candied, pie
  (See "Most Common Ways of Eating Sweetpotato" <p. 30>)

Other
- No roasted sweetpotato vendors like in Japan
- Thanksgiving (4th Thursday, November) is consumption peak
- "Sweetpotato" also means ocarina, a musical wind instrument
- Most US varieties have orange flesh
- Most varieties soft and sweet when baked

Sweetpotato acreage in the USA is about 1/15 that of potatoes. Sweetpotato acreage in Japan is less than half that of potatoes, 46,500 ha (115,000 ac) versus 103,000 ha (255,000 ac) (all figures 1997).

Annual per capita sweetpotato supply in Japan is 7.1 kg (16 lb), almost 4 times that of the USA (FAO 1994-98 average).

Annual per capita potato supply in Japan is 24.7 kg (54.5 lb), about 40% that of the USA (FAO 1994-98 average).

Potato

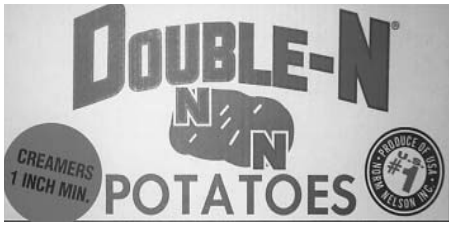
Acreage (1997)
- 548,430 ha (1,355,200 ac)
- grown mostly in the North

Main growing state
- Idaho

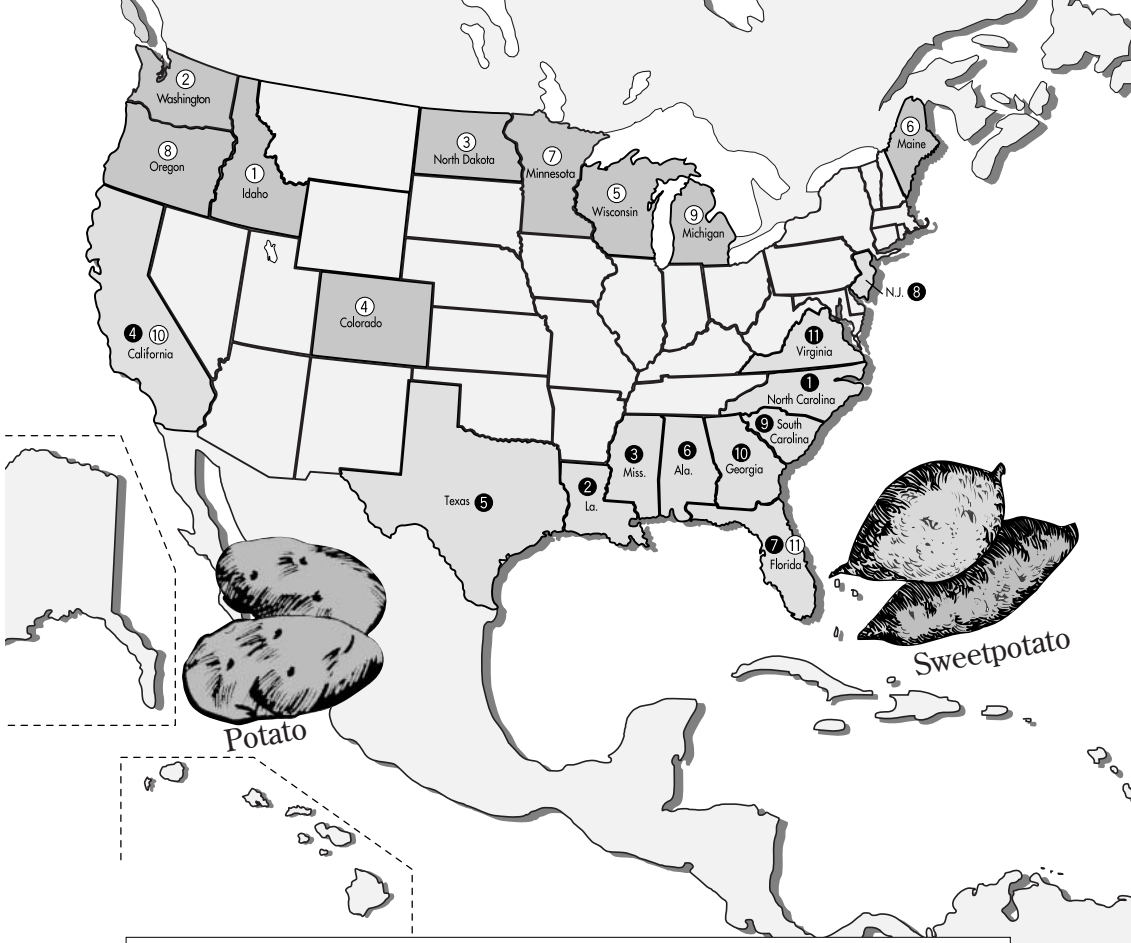
Annual per capita supply
- 62.3 kg (137 lb)
  (FAO 1994-98 average)

Popular ways of eating
- fried, baked, mashed

Other
- Baked potato vendors at fairs
- Popular year round
- "Meat and potatoes" means "basic"
- Many varieties, mostly with brown, red, or white peel, and white or yellow flesh
- Most varieties fluffy and dry when baked, though some are moist-fleshed



A 23 kg (50 lb) potato box. This brand is a pun on Dublin, Ireland's capital ("Irish potato" is an alternative name for "potato.") Norm Nelson, Inc., Washington State.



1997 Harvested Acreage (USDA Agricultural Census)

Sweetpotato			Potato		
Rank	State	Acreage	Rank	State	Acreage
	USA	31,310 ha (77,380 ac)		USA	548,430 ha (1,355,200 ac)
❶	North Carolina	11,760 ha (29,060 ac)	①	Idaho	159,850 ha (395,000 ac)
❷	Louisiana	7,480 ha (18,480 ac)	②	Washington	62,770 ha (155,100 ac)
❸	Mississippi	3,580 ha (8,840 ac)	③	North Dakota	44,430 ha (109,800 ac)
❹	California	2,840 ha (7,010 ac)	④	Colorado	34,580 ha (85,450 ac)
❺	Texas	1,990 ha (4,910 ac)	⑤	Wisconsin	34,520 ha (85,300 ac)
❻	Alabama	1,410 ha (3,490 ac)	⑥	Maine	29,580 ha (73,090 ac)
❼	Florida	640 ha (1,580 ac)	⑦	Minnesota	29,310 ha (72,430 ac)
❽	New Jersey	360 ha (880 ac)	⑧	Oregon	23,330 ha (57,650 ac)
❾	South Carolina	300 ha (750 ac)	⑨	Michigan	18,180 ha (44,930 ac)
❿	Georgia	270 ha (670 ac)	⑩	California	17,600 ha (43,500 ac)
⓫	Virginia	250 ha (610 ac)	⑪	Florida	16,700 ha (41,260 ac)

Sweetpotato Production and Consumption

Acreage

In 1997, 31,310 ha (77,380 ac) of sweetpotato were cultivated in the USA.

USA Primary Sweetpotato Growing States (1997) [1)]

State	Acreage	Share of total	Value of production ($1,000)	Share of total
USA total	31,310 ha (77,380 ac)	100%	211,180	100%
North Carolina	11,760 ha (29,060 ac)	38%	53,570	25%
Louisiana	7,480 ha (18,480 ac)	24%	48,960	23%
Mississippi	3,580 ha (8,840 ac)	11%	20,200	10%
California	2,840 ha (7,010 ac)	9%	55,690	26%
Texas	1,990 ha (4,910 ac)	6%	14,560	7%

These five states account for about 90% of both total USA sweetpotato acreage, and crop value.

California, the state with the largest agricultural economy, had less than 10% of USA sweetpotato acreage in 1997. Even so, its 1997 sweetpotato income was higher than for any other state, and in 1998, at $55.057 million, it accounted for 0.2% of California's agricultural income. Milk and cream were the largest income producers at $4.3 billion, followed by grapes at $2.4 billion, together accounting for 27% of the state's agricultural income in 1998.

North Carolina's 1998 sweetpotato income, $57.713 million, was higher than for any of the state's other vegetable or tuber crops. However, commodities such as chicken ($1.4 billion), hogs ($1.3 billion), and tobacco ($1.0 billion) together accounted for 52% of the state's agricultural income. Sweetpotato constituted 0.8%.

Sweetpotato in Louisiana generates more income than the total for other commercial vegetable production in the state. Top earners of 1998 agricultural income, which in Louisiana include forestry, fisheries, wildlife, home gardens, and so on, were forestry ($1.3 billion), poultry ($390 million), and marine fisheries ($280 million), which together accounted for 49% of the state's total. Sweetpotato income ($35.045 million) accounted for 0.9%.

USA sweetpotato acreage pales before that of potatoes, the USA's favorite tuber rated at 548,430 ha (1,355,200 ac). My native state of Oregon has only 4% of the potato acreage, but its 23,330 ha (57,650 ac) are more than the top three sweetpotato states' acreages combined.

Crop Value

Comparison of sweetpotato crop value to that of major USA farm products.

USA Agricultural Farm Income (1997)

Commodity	Value (billions of dollars)	Percent
USA total	208.665	100
Livestock and products	96.568	46.3
Cattle and calves	36.094	17.3
Dairy products	20.989	10.1
Chicken	14.152	6.8
(Turkey	2.880	1.4)
Crops	112.097	53.7
Corn, feed	20.456	9.8
Soybeans	18.321	8.8
Wheat	8.926	4.3
Vegetables	15.086	7.2
Potatoes	2.622	1.3
Tomatoes	1.645	0.8
Lettuce, head	1.324	0.6
(Sweetpotatoes	0.211	0.1)
Fruits/nuts	12.790	6.1

Grapes	3.122	1.5
Oranges and tangerines	1.953	0.9
Apples	1.575	0.8
(Cranberries	0.350	0.2)

(Selected minor commodities in parentheses.)
from ***Statistical Abstract of the United States 1999***, U.S. Census Bureau, December 1999

As the figures show, sweetpotato has a minor status in USA agriculture.

Consumption

The US Department of Agriculture estimates that the annual per capita supply of sweetpotato in the USA was as much as 13 kg (29 lb) during the 1920s. The Food and Agriculture Organization estimates this figure subsequently declined to 2 to 3 kg (4.5 to 6.5 lb) from the 1960s onward.

The USA annual per capita supply of potatoes is about 30 times that of sweetpotatoes. From the 1960s onward, potato consumption has gradually increased, largely accounted for by increased consumption of French fries and potato chips.

In 1982, an estimated 55% of the sweetpotato crop went to the fresh market,

The late Shinji Matsuzaki of Japan and Tommy Lee exchange sweetpotato farming experiences in Lee's Alabama sweetpotato field (June 1991).

with 45% being primarily canned, but with some mashed sweetpotato flakes or frozen croquettes being produced. The fresh market share increased to 60 ~70% by 1997. This trend is to the benefit of farmers since fresh market bound sweetpotatoes merit the highest market prices.

Varieties

Main USA Sweetpotato Varieties (1998 estimate)

Variety	Share of total acreage	Skin color	Flesh color
Beauregard	75%	light rose	orange
Hernandez	10%	red	deep orange
Jewel, Cordner	5%	light copper/bronze	orange/orange
Garnet	2%	dark purple	deep orange
Kotobuki	1%	reddish purple	light yellow
Other, light fleshed	4%	——	——
Others	3%	——	——

As the table shows, about 95% of the USA sweetpotato crop consists of high-carotene varieties reflecting consumer preferences. Two varieties account for most of the crop.

Variety preference changes with time as shown by Jewel accounting for about 80% of the 1989 sweetpotato crop, but preference remains steady for high carotene, sweet varieties.

Varietal preference varies by region. For example, in 1998 almost 100% of

Beauregard, currently the most popular USA sweetpotato variety, is named after a Civil War era Confederate general. Pictured is a General Beauregard brand sweetpotato box (see also "Sweetpotato Packing-Box Art," (p. 5))

the Louisiana sweetpotato crop consisted of Beauregard, with that variety commanding about 90% of the crop in the surrounding states of Mississippi, Texas, and Alabama.

In North Carolina, which has the highest sweetpotato acreage, 85% of the crop in 2000 is Beauregard, with Jewel and Hernandez each having a 5% share. This compares with 1979 when Jewel accounted for more than 90% of sweetpotato acreage.

Many Asian ethnic groups prefer a yellow, drier-fleshed alternative to the orange, moist-fleshed varieties most popular in the USA. Such a variety, Kotobuki is grown in California and marketed on the USA West Coast primarily to the many Asian ethnic groups living there.

The average USA consumer is only aware of two broad categories of sweetpotatoes, referred to as "yams" for orange, moist-fleshed ones, and "sweetpotatoes" for yellow, drier-fleshed ones. Supermarkets encourage this trend in their marketing by generally not selling specific sweetpotato varieties, but instead marketing these two broad categories.

Only some of the popular sweetpotato varieties predating the 1939 start of the USA breeding program seem to be preserved in the USDA sweetpotato

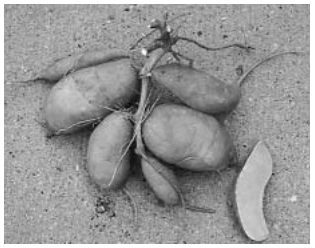
Enlarged view of second row from bottom. These 450 g (1 lb) cans of sweetened sweetpotatoes are selling for $0.99 (January 1999).

Store Owner Pat Daugereaux at the canned sweetpotato section of Rod's Supermarket (lower two shelves). Church Point, Louisiana (January 1999).

Descriptions of Main USA Sweetpotato Varieties

Beauregard

Released in 1987 by Louisiana. Very high yielding. Light rose skin with orange flesh.



A hill of Beauregard also showing a cross-sectional view. (Photo courtesy of Dr. Christopher Clark, Louisiana State University)

Beauregard vines showing leaf shape, and upper and lower leaf views. (Photo courtesy of Dr. Christopher Clark, Louisiana State University)

Hernandez

Released in 1982 by Louisiana. High yielding. Red skin with deep-orange flesh.

Jewel

Released in 1969 by North Carolina. High yielding. Light copper skin with orange flesh.

Cordner

Released in 1983 by Texas. High yielding. Bronze skin with orange flesh.

Garnet

Informally released in California in the 1960s, and grown primarily there. Dark-purple skin with deep-orange flesh that is very sweet when baked.

Kotobuki

Introduced to the USA from Japan in 1986. Subtype of Kokei No. 14 (released 1945). Reddish-purple skin with light-yellow flesh that is very dry when baked.

Other light-fleshed varieties

Besides Kotobuki, there are a number of other light-fleshed varieties. One example, Jersey type varieties, which predate sweetpotato breeding which began in the USA in 1939, have brown skin with yellow flesh which bakes up drier than the moist, orange-fleshed varieties most popular today. Jersey-type sweetpotatoes can still be found in some USA West Coast, North, and Northeast Coast markets.

germplasm collection. For example, a source from the 1910s introduces four low-carotene, drier fleshed varieties, none of which are listed in the USDA collection. Likewise, the 1910s source and another from the 1930s introduce nine primarily high-carotene, moist-fleshed varieties of which only three are listed in the USDA collection. [2)]

However, there are a number of seed exchange organizations which maintain old varieties of crops, and exchange planting material among their members. Some heritage varieties of sweetpotatoes have been thus preserved. There are also commercial seed companies which maintain a stock of such traditional sweetpotato varieties.

A Japanese sweetpotato breeder offers this opinion concerning the sparsity of sweetpotato varieties in the Japanese market, and the decline in heritage varieties:

"A blandness has come to the Japanese vegetable market due to there being few varieties of any particular vegetable available. When Japan's economy was rapidly expanding, there was pressure for overall standardization to make economic growth more efficient. Now, with the marketplace flush with products, and with a slow economy, we invite stagnation by ignoring customers' wishes for variety. We need to stimulate economic demand by increasing customer choice. This can involve bringing back old varieties of familiar vegetables, but as a researcher, I hope to bring many new varieties to market." [3)]

The USA sweetpotato market also offers few varieties to customers, but work seems to be underway creating new unique sweetpotato varieties. Such varieties are unlikely to reach the general market, but to be tailored to the needs of specific ethnic groups.

Sweetpotato Puree Industry

Research is being done to create sweetpotato varieties tailored to the special processing needs of two types of puree makers. The babyfood industry depends on natural sweetness for its sweetpotato product. It also prefers a low-starch sweetpotato to be able to create a soft pureed product containing no additives. A well-cured sweetpotato is ideal for this purpose.

The pie filling industry prefers a high-starch sweetpotato so as to have a firm product. The sweetness of the sweetpotato is immaterial as it can be adjusted with added sugar. Ideal for this industry is a just-harvested, uncured sweetpotato.

Due to the specific requirements of these two puree industries, they are currently only able to obtain suitable processing sweetpotatoes during a limited time each year, thus keeping their processing plants idle most of the year. The babyfood industry's dream sweetpotato to allow year-round processing is one high in alpha- and beta-amylase so that regardless of the time of year it is processed, these enzymes can be harnessed to convert the starch to sugar. The pie filling industry's ideal is to have a sweetpotato that will remain high in starch whether freshly harvested or cured due to a low amylase content. Sweetpotato varieties for both industries are under development. [4)]

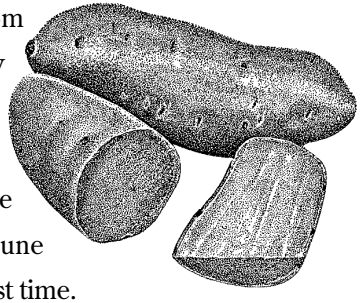
1) The figures vary annually due to vagaries of weather, prices, pests, and so on. Though these USDA figures are the latest available, they are not necessarily representative of any state's normal production.
(1997 Census Of Agriculture, Vol. 1, USDA, April 1999; ***Crop Values 1999 Summary***, USDA, February 2000.)

2) Conolly, H.M., ***Illustrated Lecture on Sweetpotatoes: Culture and Storage***, USDA, Syllabus 26, Washington, D.C., April 21, 1917, p. 16.
Carver, George W., ***How the Farmer Can Save His Sweetpotatoes, and Ways of Preparing Them for the Table***, Bulletin No. 38, November 1936, Tuskegee Institute, Tuskegee, Alabama, USA, 4th edition, 1937, p. 3.

3) Opinion posted to the Japan Society for Root and Tuber Crops' e-mail mailing list, June 12, 1998, by Dr. Satoru Yamakawa, then Chief, Sweetpotato Breeding Laboratory, Kyushu National Agricultural Experiment Station, Japan.

4) Wilson, Paul W., Don R. LaBonte, Durel J. Romaine, and Nolan P. Farace, "Selection of Sweetpotato Cultivars for Processing Characteristics," ***Louisiana Agriculture***, Vol. 4, No. 4, Fall 1997, p.14.

Sweetpotato Farming



Most sweetpotato farms in the USA range from 100 to 800 ha (250-2000 ac) in size. Of the roughly $3,000 per ha ($1,200 per ac) cost of sweetpotato production, about one-third goes for labor costs. Farmers largely depend upon migrant labor since intensive labor is needed twice a year: May and June slip planting time, and August to November harvest time.

Though labor costs account for about one-third of sweetpotato production, migrant laborers are primarily paid the federal minimum wage, $5.15 per hour. Migrant laborers from Mexico are on the increase, but the low wages make it difficult to attract dependable workers. Additional labor costs include insurance for laborers, work safety training, and filing of relevant paperwork for taxes and other purposes. Between 1991 and 1997, the minimum wage gradually rose from $3.80 to $5.15 bettering the lives of laborers, but raising the hourly wage farmers must pay by 36%.

In the case of the primary USA crops such as grains, production area is large enough to justify mechanization research to drastically reduce labor costs. Sweetpotato is such a minor crop that only a few hundred machines of any particular purpose would saturate the market, restricting the profitability for developing such machines. Further, the planting of sweetpotato slips and harvesting of the tubers have proven somewhat complicated to mechanize. Ideally, machines designed for other crops would be used for sweetpotato, but this still entails some degree of redesign. One successful pattern is for agricultural experiment stations to work with farmers in designing a machine, then turning machine production over to a private firm.

A typical USA sweetpotato farm averages about 140 ha (60 ac). Growing less than 120-140 ha (50-60 ac) of sweetpotato cannot bring a return on the necessary investment in machinery, storage and shipping facilities, and so on, amounting to $100 to $200 million for an average farm.

Almost all USA sweetpotato varieties grown are orange fleshed, high in carotene. However, according to the region or ethnic group, tastes vary. Consumers in New York, New Jersey, or the West Coast tend to also prefer drier varieties with a yellow flesh. Southern Florida, with a high proportion of Cuban and other Hispanic population tends to grow more white-fleshed sweetpotatoes high in starch. This dry type introduced from the Caribbean area is available fresh year-round in Miami markets. The Food and Agricultural Organization (FAO) estimates that Cuba had a per capita supply of 10.6 kg (23.3 lb) of sweetpotato per year (1994-98 average). The 1990 US Census showed that 30% of the Dade County, Florida population is of Cuban origin. So sweetpotato consumption in southern Florida tends to be high. The area is warm enough to grow two sweetpotato crops per year.

The West Coast has higher populations of Asian ethnic groups. Meeting the needs of some of these people is a Japanese sweetpotato variety grown on about 200 ha (about 500 ac) in California and called Kotobuki, which has light yellow, dry flesh.

In any case, about 95% of USA sweetpotato production is of orange-fleshed varieties.

The growing year begins in February or March when seed sweetpotatoes are removed from storage and planted in sprouting beds. A 1 m (39 in) wide

An eight-row sweetpotato planter at rest in Louisiana. A tractor pulls the planter manned with 16 laborers who insert cuttings into the machine for automatic planting. (Photo courtesy of Dr. Don LaBonte, Louisiana State University)

shallow ditch is prepared in which disinfected sweetpotatoes are placed, then covered with about 8 cm (3 in) of soil. This is covered with black plastic sheeting to warm the soil. When sprouts begin appearing, the sheeting is removed. Some farms mechanically trim the sprouts to an even height to make them stronger and easier to mechanically transplant.

Sweetpotato cuttings are planted during May and June. Most farms cut the sprouts by hand, but by using a mechanical cutter five or six workers can do the work of 100, cutting 420,000 cuttings in four hours.

Using a six-row planter, 13 workers can plant 4.7 ha (12 ac) during an eight-hour workday with 30,000 cuttings per hectare (2.5 ac). A planter moves at about 1.2 km per hour (0.7 mph) allowing the planting of one cutting per row per second.

Diseases and Pests

Present-day varieties of sweetpotato have been bred to be disease resistant, making cultivation easier than in the past. The possibly detrimental effect of viruses on yield and quality is currently being researched, and use of virus-free cuttings is increasing.

Until now, viruses were not considered a serious problem for sweetpotato growers. But it is now recognized that viruses can reduce yield and cause poor product appearance. They may also play a role in causing the high carotene varieties popular in the USA to mutate into a low carotene product. Since

A four-row harvester at work in Louisiana using 23 workers to harvest 5 ha (12 ac) per day. Sweetpotatoes are graded, and put directly by conveyor belt into 360 kg (800 lb) crates for transport to curing sheds. (Photo courtesy of Dr. Don LaBonte, Louisiana State University)

sweetpotato is propagated vegetatively, viruses and the mutations which so easily occur in sweetpotato tend to accumulate over time. Research is needed to prevent these effects from adversely affecting the crop.

Insect pests and weeds are a farmer's worry. Major pests include sweetpotato weevil (*Cylas formicarius elegantulus* Summers), banded cucumber beetle (*Diabrotica balteata* Leconte), white grubs (*Phyllophaga* spp.), white fringed beetle (*Graphognathus* spp.), wireworm (*Conoderus falli* Lane), and sweetpotato flea beetle (*Chaetocnema confinis* Crotch). Due to sweetpotato's minor crop status, chemical companies are reluctant to develop agricultural chemicals specially designed for it. Therefore one strong emphasis of sweetpotato breeding is creation of varieties resistant to the primary pests, sweetpotato weevil and banded cucumber beetle.

Weeds troublesome to sweetpotato farming include sedges such as *Cyprus esculentus* L. Only one herbicide is widely available for sweetpotato cultivators, so research is underway to create herbicide resistant varieties allowing use of herbicides commonly used for other crops.

In any case, some research is also being done on pesticides or herbicides specifically designed for sweetpotato cultivation.

Harvest

Before harvesting during August to November, farmers mechanically remove vines from the ground. A two-row harvester using 14 workers can harvest about 1.5 ha (3.7 ac) during an eight-hour workday. A typical 120 ha (300 ac) sweetpotato farm uses three two-row harvesters to harvest about 5 ha (12 ac) per eight-hour workday, or about 25 ha (62 ac) per five-day workweek, to finish harvest in about five weeks.

A four-row harvester using 23 workers can harvest about 5 ha (12 ac) during an eight-hour workday. These are normally used on 200 ha (490 ac) or larger farms. Sweetpotatoes are graded, and put directly by conveyor belt into 360 kg (800 lb) crates for transport to curing sheds by forklift.

To provide the same growing season for an entire crop, fields to be harvested earliest are planted earliest. A large farm may therefore spread planting over as much as six weeks.

A goal of the USA sweetpotato breeding program is to create varieties suited to mechanical harvesting that produce a uniformly sized marketable crop. This would make grading less labor intensive thus reducing labor costs, and yielding a larger percentage of marketable crop which would provide farmers more income.

Postharvest

One purpose of curing is to heal sweetpotatoes bruised during harvest to help them store better. This three to five day process of keeping the harvest at 27℃ (80°F) and 85-90% humidity also yields a sweeter product. Following curing, the crop is stored at 16℃ (60°F) with 85-90% humidity.

According to market demand, sweetpotatoes are brought out of storage, washed, and shipped in 18 kg (40 lb) cardboard boxes. Rhizopus soft rot (*Rhizopus stolonifer* (Her. ex Fr.) Lind) is a worry at this point since it can spread through a box spoiling the sweetpotatoes. To reduce the use of fungicides, varieties strong against soft rot are being bred.

Shipment of sweetpotatoes is highest from September to December, with the largest peak at Thanksgiving (fourth Thursday in November) and a smaller peak at Christmas (December 25). Best grade sweetpotatoes, US #1, fetch about $11 per 18 kg (40 lb) box. These must be nicely shaped with a 5 to 9 cm (2-3.5 in) diameter and 8 to 23 cm (3-9 in) length. Babyfood and some other processors use mostly large sized sweetpotatoes paying about $7 per 18 kg box for marketable potatoes larger than US #1s. Canners pay about $2 per 18 kg box for misshapen or damaged US #1s, or those 2.5-5 cm (1-2 in) in diameter and 5-18 cm (2-7 in) in length. Outside the September to December sweetpotato season market demand is low so even the best grade potatoes fetch only $5 to $6 per 18 kg box. The USA government does not subsidize sweetpotatoes, so market prices vary widely during a year.

Some 30 to 40% of the USA sweetpotato harvest is processed, mostly canned. For canning, the potatoes are steamed, peeled, and often flavored. A 450 g (1 lb) can sells for about $1. Bruce Foods (left and above) and Allen Canning (above right) account for most of the canned market. (January 1999)

The total retail value of USA sweetpotato sales is estimated at $350 million for 1997. About 60% or more than $200 million of this went to the farmer, with the rest going to processors, shippers, retailers, and so on.

Canned sweetpotatoes, babyfood, and puree for pie account for almost all USA sweetpotato processing. Processors include Gerber, Heinz, Beech Nut, and so on for babyfood; Bruce Foods for canned and flakes; and Allen Canning for canned. Sweetpotato chips began appearing in some regions from about 1995.

The 1997 USDA Census reported farmers' average sweetpotato yield was 17 mt/ha (7.4 t/ac). Of this, 60 to 70% is suitable quality for the fresh market which returns the highest prices. To achieve best quality yields, with some variation due to variety and so on, sweetpotatoes are best harvested 90 to 120 days after planting the cuttings. A farmer can break even on his/her investment by receiving an annual average of $5 to $6 per 18 kg (40 lb) box.

Reference:
LaBonte, D. R. and J. M. Cannon, "Production and Utilization of Sweetpotato in the United States," ***Proceedings of International Workshop on Sweetpotato Production System toward the 21st Century***, edited by Dr. Don R. LaBonte, Dr. M. Yamashita, H. Mochida, Kyushu National Agricultural Experiment Station, Miyakonojo, Miyazaki, Japan, March 1998, pp. 29-32.

Research
National Sweetpotato Collaborators Group

The National Sweetpotato Collaborators Group is a network for information exchange among researchers established in 1939. A chief motivation for the establishment was dissatisfaction with how sweetpotato varieties of the time were weakening against disease. It was decided to begin a breeding program to create improved varieties rather than continuing the traditional inefficient method of selecting favorable new varieties through natural mutations. In 1937, Dr. Julian Miller and others at Louisiana State University had succeeded in getting sweetpotato to flower and bear viable seed, something that happens naturally in tropical areas, but a challenge to make happen in temperate ones. Two years later, this proved to be a key technology spurring the formation of the Collaborators by Miller and fellow researchers.

In 1912, 85% of US sweetpotato acreage was in 12 Southern states. With the onset of the Great Depression in late 1929, US acreage increased to a historical high of 429,000 ha (1.06 million ac) in 1932. Sweetpotato was especially important as a food source for the Southern rural poor, another reason spurring the Collaborators' formation.

The Collaborators were first comprised of officials from the US Department of Agriculture and researchers of agricultural experiment stations attached to Southern state universities. With time, membership expanded to include researchers from outside the South, members from industry, and so on. In addition to sweetpotato breeding, the Collaborators' areas of interest expanded to include processing, mechanization of cultivation, storage, physiology, entomology, and so on.

During World War II, research was conducted into how best to process sweetpotato for consumption by the military. To best preserve sweetpotato

(left)
Dr. Mike Cannon, Resident Director of the Sweetpotato Research Station associated with Louisiana State University, the only US station devoted solely to sweetpotato. (Holding Beauregard.)
Photo, courtesy of Dr. Mike Cannon, appears in ***Louisiana Agriculture***, Vol. 40, No. 4, Fall 1997, the magazine of the Louisiana Agricultural Experiment Station.

(above)
Louisiana Agriculture special sweetpotato issue, Fall 1997. (See also "Sweetpotato Packing-Box Art" <p. 5>)

products for transport to remote locations, drying techniques were researched. Additionally, high starch varieties were bred. At the time, the starch was used in the food, as well as textile and other industries.

In 1960, Centennial, a variety newly-bred in Louisiana was announced. Centennial was to become the mainstay variety for the next 20 years or so.

Between 1969 and 1989, 29 new varieties were released in the US. Among them, Jewel, released by North Carolina in 1969, was to dominate 80% of production by 1989.

Most of the varieties released between 1969 and 1989 were high in carotene, giving them orange flesh. But three releases had white or yellow flesh, though none are widely grown today. Rojo Blanco, released by Alabama in 1977, has deep red skin with white flesh, which is dry when cooked. Sumor, released in

1987 by South Carolina, has yellow to light brown skin with white to yellow flesh. It is not very sweet, resembling a potato when baked. White Delite was released in 1987 by North Carolina. With purplish pink skin and pale yellow flesh, it has superior mouth feel.

Currently, US sweetpotato research is done primarily at experiment stations associated with North Carolina University, the Sweetpotato Research Station associated with Louisiana State University, and the US Department of Agriculture Vegetable Laboratory in South Carolina. Facilities corresponding to these in Japan are the Laboratory of Sweetpotato Breeding at the Kyushu National Agricultural Experiment Station (Miyazaki Prefecture), and the Sweetpotato Breeding Laboratory at the National Agriculture Research Center (Ibaraki Prefecture).

The US Department of Agriculture maintains its collection of sweetpotato varieties for breeding and preservation purposes at its germplasm collection at the University of Georgia (Griffin, Georgia). In May 2000, there were more than 600 varieties available.

The Collaborators are a volunteer network. The group's headquarters change according to which member is selected contact person. Annual membership is five dollars which is primarily used to publish the transactions of the annual meeting using the inexpensive services of the contact person's associated university. Sweetpotato research is done primarily at the state level, or through the US Department of Agriculture, but the Collaborators help facilitate information exchange among these groups.

Many of the Collaborators use research money from the US Department of Agriculture, and their projects can be seen on the Internet.

The Collaborators are a part of the Southern Region of the American Society for Horticultural Science which is affiliated with the Southern Association of Agricultural Scientists. The Collaborators' annual meeting is held in conjunction with these other two organizations in late January or early February, rotating among 13 Southern US states.

The National Sweetpotato Collaborators Group and Sweetpotato Council of the United States, Incorporated, maintain close ties. The Council members are primarily sweetpotato growers, processors, and distributors. However, one goal of both groups is to increase US sweetpotato consumption.

The Collaborators also have international cooperation with the International Potato Center (CIP), the International Society for Tropical Root Crops, and so on. International exchange of sweetpotato varieties and information enhances the production of improved varieties.

Reference:
Jones, A., J.C. Bouwkamp, editors, ***Fifty Years of Cooperative Sweetpotato Research,1939-1989***, Southern Cooperative Series, Bulletin No. 369, Louisiana, USA, April 1992.

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■Management of the Sweetpotato Council of the United States, Incorporated, is being reorganized at this time (July 2000). Alternatively, the largest producing sweetpotato state can be contacted at:

Sue Johnson-Langdon
North Carolina Sweetpotato Commission, Inc.
1327 N Brightleaf Blvd #H
Smithfield, North Carolina 27577-7263, USA
Telephone: (919)989-7323
Fax: (919)989-3015
E-mail: ncsweetsue@aol.com
Website: www.ncsweetpotatoes.com

Organic Farming of Sweetpotatoes

The United States federal government is in the process of developing national standards for organically produced and processed food. This is in part to meet the needs of a growing number of consumers, growers, and businesses that feel organic produce is healthier, and kinder to the environment to grow than the non-organic alternative.

"Organically grown" implies the use of natural fertilizers and growing methods to produce a healthy crop free of pests. One may even say that before the era of artificially produced fertilizers and pesticides that farming methods were implicitly organic. Likewise, the farmers in the world today who are unable to afford artificially produced fertilizers and pesticides could be said to be growing organic crops.

In 1930s England, the agricultural scientist Sir Albert Howard advocated the use of natural fertilizers over artificial ones. This is said to mark the beginning of modern organic farming.

The US organic food industry, which began in the late 1940s, expanded more than 40-fold during the decade beginning 1986 so that 1996 sales reached $3.5 billion.

In the USA there is currently a patchwork of organic farming standards with some states having regulations, and others none. Even among states with standards, the degree of strictness varies. There are also organic farming organizations that set their own standards for members.

California, the leading US agricultural producer, formed an organic farming standards law in 1990. The organization California Certified Organic Farmers (CCOF), which initiated the formation of a state standard, had previously been certifying its own members following its founding in 1973. The CCOF web site shows three CCOF-certified farms growing 14 ha (35.5 ac) of sweetpotatoes (April 2000).

At the request of individuals and groups concerned with improving the organic food industry, the Federal Organic Foods Production Act was passed by the US Congress in 1990 to initiate the setting of national standards. The Act charged the United States Department of Agriculture (USDA) with preparing a regulation stipulating national standards in detail, and also provided that an advisory board, the National Organic Standards Board be formed to advise the USDA. The 14 members represent different segments of the organic food industry, and primarily advise the USDA Secretary concerning what substances should be permitted for producing and handling organic food. As of Spring 2000, the National Organic Program (NOP) is in its final stages of formation with comments being received from the public concerning the revised proposed rule.

In accordance with opinions received from the public, among the products that will not be permitted to be labeled as organic under the NOP are genetically modified organisms, irradiated food, and food grown with sewage sludge.

It is hoped that the NOP will reflect international organic food standards in order to facilitate trading of organic foods in the international marketplace.

References:
National Organic Program
www.ams.usda.gov/nop/
California Certified Organic Farmers
www.ccof.org/index.htm

At Thomas Packing Plant in Livingston, California. The author with area sweetpotato farmers Tom Nakashima (organic grower) (L) and Gary Hamaguchi (R). The upper three sweetpotato boxes are labeled as organically grown (non-Nakashima brands). (January 1997)

Sweetpotatoes
What's in a Name?

Suitopoteto is the Japanese pronunciation of "sweetpotato," but this name in Japan refers to a common confection made with that tuber as the main ingredient. Made from mashed sweetpotato, sugar, butter, and so on, it is baked in small, individual, sweetpotato-shaped portions to serve with tea.

There are few interesting expressions in English using sweetpotato compared to Japanese where invoking that tuber's name carries a negative connotation. However, "sweetpotato" in English is used to refer to the musical instrument "ocarina" due to its sweetpotato-like shape.

A greater variety of tubers is consumed in Japan than in the US. Looking at the tubers consumed in both countries, potatoes are by far the most popular. Next come sweetpotatoes. Other tubers popular in Japan, such as aroids (taro, and so on) and yams, are consumed on a small scale in the US generally by certain ethnic groups favoring them. The tubers the majority of Americans are familiar with are limited to potatoes and sweetpotatoes. The "yams" that many Americans think they are eating are in fact sweetpotatoes. True yams are unrelated to sweetpotatoes, but the name has been misappropriated as a name for high carotene, moist flesh sweetpotatoes. "Sweetpotatoes" is used to refer to lower carotene, drier flesh sweetpotatoes.

Sweetpotatoes preceded potatoes to Europe. Fifteenth century and later European explorers came across sweetpotatoes in the Caribbean where they were locally referred to as ***batata***, leading to their being named ***patata*** in Spanish or "potato" in English. When potatoes were subsequently better received in Europe than sweetpotatoes, "potato" gradually came to refer to potatoes rather than sweetpotatoes, with the latter coming to be called "sweet" potatoes.

At the international symposium "Sweetpotato Technology for the 21st Century," held at Tuskegee University (Alabama) in June 1991, it was declared that "sweet potato" should henceforth be called "sweetpotato" to emphasize that it is a tuber in its own right, not a "sweet" potato.

Reference:
Schultheis, Jonathan R., L. George Wilson, "What is the Difference Between a Sweetpotato and a Yam?", horticultural information leaflet 23-A, North Carolina Cooperative Extension Service, North Carolina State University, revised September 1993.

Declaration at the international symposium on "Sweetpotato Technology for the 21st Century", that "sweet potato" shall henceforth be written as one word, "sweetpotato" to emphasize it is not a "sweet" potato. From ***Tuskegee Horizons***, Tuskegee University, Alabama, USA, Fall 1991.

High-carotene sweetpotatoes are mistakenly called "yams" in the USA. The USDA requires that "yam" products be also labeled as containing sweetpotato to correctly inform consumers.

Bruce's Candied Yams label explains the can actually contains sweetpotatoes. January 1999.

Trappey's Sugary Sam (Allen Canning) is labeled as both "yams" and "sweetpotatoes." January 1999.

Most Common Ways of Eating Sweetpotato

Of the eight G8 countries[1] representing some of the world's strongest economies, only two, the USA and Japan, consume much sweetpotato. However, the tuber reigning in popularity in all eight countries is the potato.

Most of the sweetpotatoes consumed in the USA are high-carotene varieties, with annual per capita intake much lower than in Japan. Peak USA consumption is on Thanksgiving Day (4th Thursday in November) when sweetpotato graces many tables along with turkey. Smaller peaks occur at Christmas and New Years.

A common way of eating sweetpotato is eating it baked. It is often baked along with whatever main dish is being prepared much as a baked potato would be. Unlike potatoes, sweetpotato is eaten less often with beef than it is with chicken, ham, or turkey.

The sweetness of a cooked sweetpotato will vary according to the time of year, and how quickly it is cooked. A sweetpotato freshly harvested in the fall, and cooked quickly as in a microwave oven, will be less sweet. Using a cured sweetpotato (all that is available in the winter, spring, or summer), and/or cooking the sweetpotato slowly such as baking it, will yield a sweeter product. This phenomenon is due to how much the amylase enzymes in the sweetpotato are allowed to work. Starch is gradually converted by the enzymes to sugar as time passes after harvest. Also, as a sweetpotato cooks, heat causes the enzymes to more actively convert starch to sugar before they are finally destroyed by high temperatures. Slower cooking allows the enzymes more time to sweeten a sweetpotato than quick cooking.

1) G8 countries: Canada, France, Germany, Italy, Japan, Russia, United Kingdom, United States.

Baked Sweetpotato

Photography courtesy of the North Carolina Sweetpotato Commission

Preparation

Sweetpotato is washed, buttered, and baked. It is best to pierce it before it becomes soft to prevent rupturing.

Candied Yams (serves 6 to 8)

Candied Yams is another popular dish. There are many recipe variations, but a representative one follows:

Ingredients

1.4 kg (3 lb)	sweetpotato
Seasoning for each layer:	
1 tsp	butter
to taste	salt, black pepper, paprika
2-3 Tbs	packed brown sugar or maple sugar
2 Tbs	butter
1/3 cup	apple cider or water

Preparation

Boil sweetpotato till not quite soft, peel, slice into quarters lengthwise. Layer in a 33 cm × 23 cm (13 in × 9 in) baking pan, sprinkling with seasoning for each layer. Sprinkle on remaining butter, and the apple cider or water. Cover, and bake at 180℃ (350°F) for about 45 minutes.

Adapted from:
Rombauer, Irma S., Marion Rombauer Becker, Ethan Becker, ***Joy of Cooking***, Scribner, New York, 1997, p. 428.

Sweetpotato Pie (serves 6)

Sweetpotato consumption is somewhat higher in the USA's South than elsewhere, and sweetpotato pie is one popular dish. Below is a recipe from the ***Gone with the Wind Cook Book*** printed about the time the movie ***Gone with the Wind*** first played in theaters in 1939. The recipe is ascribed to one of the heroines, Melanie.

Ingredients

2 cups	mashed, cooked sweetpotato
1/2 cup	brown sugar, firmly packed
1/4 tsp	salt
1 tsp	cinnamon
1/2 tsp	nutmeg
4	egg yolks
1/3 cup	melted butter or margarine
2 cups	milk
4	egg whites
23 cm (9 in)	unbaked pie shell

Preparation

1) Mix the sweetpotato, brown sugar, salt, cinnamon, and nutmeg.
2) Mix the egg yolks thoroughly, then mix into 1) with melted butter or margarine.
3) Mix milk with 2).
4) Whip egg whites until fluffy, then carefully fold into 3).
5) Pour into unbaked pie shell, bake at 220℃ (425°F) for 15 minutes, then at 190℃ (375°F) for 25 minutes till filling firms.

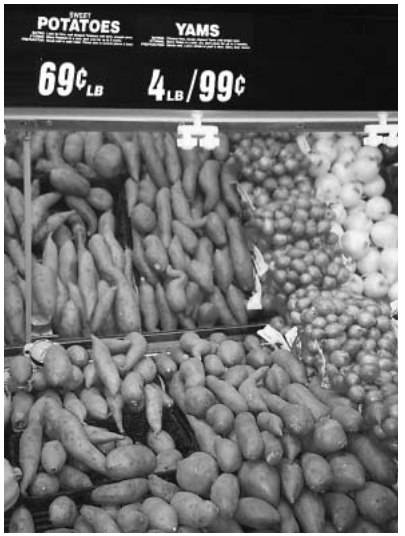
Adapted from:
Gone with the Wind Cook Book, Pebeco Toothpaste, Bloomfield, New Jersey, USA, ca. 1939, p. 41.

Sweetpotato is often used interchangeably with pumpkin in USA cooking. Since strong flavorings are favored by many, it is often difficult to distinguish whether such dishes are made from sweetpotato or pumpkin.

* * *

Sweetpotatoes are normally divided into two categories whether being sold in supermarkets or introduced in cookbooks. One category, usually called "yams," refers to high-carotene varieties of sweetpotatoes that are sweet and soft when cooked. The other category is "sweetpotatoes" referring to yellow- or white-fleshed varieties lower in carotene that are drier than "yams." Most cookbooks have recipes designed primarily for high-carotene sweetpotatoes.

Though about 95% of the USA sweetpotato crop is of high-carotene varieties, there are regions or ethnic groups preferring varieties lower in carotene. An important example is the Miami, Florida area where a significant proportion of the population is of Cuban origin. This area prefers low-carotene sweetpotatoes of a genre referred to as boniato.



Regardless of the variety, sweetpotatoes are often sold in USA supermarkets in two categories, "yams" (high-carotene), and "sweetpotatoes" (low-carotene).

(left)
Here, "sweetpotatoes" are selling for $1.50/kg (0.69/lb).

(center)
"Yams" are on sale for $0.55/kg ($0.25/lb).

(right)
Bagged and individual onions.
(Lake Oswego, Oregon. January 1999)

Sweetpotato in Literature

The Yearling and Sweetpotato Pone

The home of US sweetpotato cultivation is in the South. The novel ***The Yearling***, written in 1938, centers on the Baxters, a poor family that lives in rural Florida, and consumes sweetpotatoes three meals per day for about half a year from the November harvest. The Baxters often ate baked sweetpotatoes, but "sweetpotato pone" was a special treat. This dish is mistakenly translated as "sweetpotato bread" in a Japanese translation of the novel, though it is actually a sweet dessert. Sweetpotato pone is a Southern dish which varies by region. Below is a recipe from ***The Yearling***'s author Marjorie Kinnan Rawlings' ***Cross Creek Cookery***, named after a rural Florida area where she resided.

Ingredients

2 1/2 cups grated raw sweetpotatoes
1 cup molasses
2 eggs
2 cups rich milk
1 Tbs melted butter
1 tsp ground ginger or grated orange rind
1 Tbs brown sugar
1/2 tsp powdered cinnamon

Preparation

Add the molasses, well-beaten eggs, milk, melted butter and ginger or orange rind, in order, to the grated potatoes. Turn into a well-greased baking pan and bake about 45 minutes at 180℃ (350 °F), sprinkling the brown sugar and cinnamon over the top at the end of the first 25 minutes.

Simple Sweetpotato Pone

It is more likely that what the Baxter family ate in ***The Yearling*** was a thick sweetpotato pudding simply made as described by the author, Rawlings, below:

Ingredients

2 cups grated sweetpotato
2 Tbs flour
3 Tbs grease from fried white bacon
1/2 tsp baking soda
1 cup homemade cane syrup
enough water to make a thin mixture

Preparation

Mix ingredients thoroughly, and bake in a shallow pan at 150℃ (300 °F) until firm and slightly brown.

The sweetpotato pone recipes introduced by Rawlings above call for the high carotene, sweet, sweetpotato varieties most popular in the US. Rawlings does not write clearly in ***The Yearling*** what variety of sweetpotatoes the Baxters were growing, but one may surmise that since they were a major part of the Baxter diet, they would likely have been a variety low in sweetness.

References:
Rawlings, Marjorie Kinnan, ***The Yearling***, Scribner Classic Collier Edition, reprint of 1938 edition, New York, 1986, pp. 12, 118, 143, 196, 215, 264, 265, 301, 308.

Rawlings, Marjorie Kinnan, ***Cross Creek Cookery***, Charles Scribner's Sons, New York, 1942, pp. 183-185.

Rawlings, Marjorie Kinnan, ***The Yearling***, Scribner Classic Collier Edition, reprint of 1938 edition, New York, 1986. Drawn by Edward Shenton.

Eating Out
Sweetpotato at the Restaurant

Sweetpotato is not a common daily food in the USA. However, it has recently begun appearing on more restaurant menus due to the innovation of certain restaurant chains. Until recently, about the only type of restaurant that served sweetpotato with any regularity was one specializing in soul food, dishes traditionally eaten by African-Americans, especially those from the South. Even so, to locate such a restaurant one usually had to search for an urban area with some concentration of African-Americans.

Soul food evolved from the humble foods of rural Southern African-Americans. As they moved to big cities throughout the USA, a nostalgia for a taste of home led to humble foods evolving to meet modern tastes, and soul food became one point of identity for African-Americans.

Sweetpotato tends to be favored more in the South than in other areas, regardless of race or ethnicity. The warm climate there is better suited for raising heat-loving sweetpotatoes than potatoes which prefer a cooler climate. Favored ways of eating sweetpotato there include baked, various kinds of desserts, and so on.

Meals at soul food restaurants tend to be centered around hamburger, chicken, catfish, and so. Individually run restaurants have been more common than soul food chains, so there is menu variation depending on the restaurant one chooses.

Thompson's Point of View, a soul food restaurant in Seattle, Washington, was where I ordered a catfish dinner some years ago. Customers could chose two vegetables to go with the main dish, so I enjoyed candied yams and black-eyed peas. A large cornmeal cake rounded out the meal, and the other sweetpotato item on the menu, pie, was a suitable ending.

The high-carotene sweetpotatoes preferred in the USA provide a different appearance and mouth feel compared to the low-carotene, dry-fleshed sweetpotatoes popular in Japan. Also, there is a preference among USA cooks to cover up the sweetpotato's natural taste with cinnamon and other strong spices.

Though sweetpotato has been available only in limited USA restaurants, an exception is Thanksgiving, the fourth Thursday of November. This day celebrates a successful harvest had by 17th century Pilgrims eking out a living with the help of Native Americans in what is now the Northeast USA. Today's Thanksgiving menu often includes various foods native to the Americas: turkey, sweetpotato, cranberries, and so on. Similar to New Years in Japan, relatives gather together to feast on foods special to Thanksgiving. For those unable to celebrate with relatives, many local restaurants serve Thanksgiving fare, including sweetpotatoes, during that season.

In my youth a few decades ago, turkey, sweetpotato, and cranberry were all still thought of as primarily Thanksgiving foods, and were not available year-round nationwide. The arrowroot that appears in Japanese New Years cooking is similar in this regard as it disappears from the market following the holidays. However, the turkey and cranberry industries improvised on how to adjust their products so they now appear in a variety of forms year-round. First needing a change was the autumn/winter holiday-use only image. Cooking a large turkey for a big family gathering takes much of a day, so the turkey industry began marketing turkey parts, as well as processed products, that are designed to be easily consumed year-round.

Similar to turkey, cranberries were also long associated primarily with the Thanksgiving holidays as an accompaniment to turkey. It was basically sold as frozen berries for home processing, or sold as canned relish or gelled juice. The cranberry industry has succeeded in breaking its Thanksgiving-only image through creative marketing of various juices containing their product, and of craisins, dried cranberries that the industry encourages consumers to

use as they would raisins. Sweetpotatoes remain locked in to a strong "food for Thanksgiving/holidays" image.

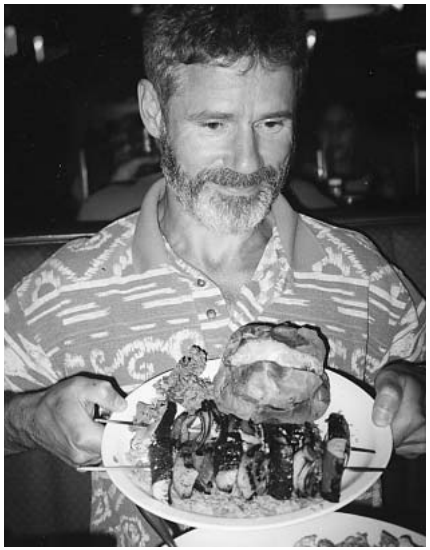
As the chart "USA Agricultural Farm Income" (p. 9) shows, the value of the US sweetpotato crop is less than that of either cranberries or turkey.

However, at least one restaurant chain, Roadhouse Grill, has introduced sweetpotato as a regular item on its menu which mainly centers around steak. With the first store opening in 1993 in Florida, the chain now has about 80 stores in 10 states, mostly in the South. Once related to this chain, there are also three Original Roadhouse Grill's in Oregon with a similar menu.

The Grill is an inexpensive family restaurant. Near the register in the restaurant I entered was a large barrel of peanuts. Waiting to be seated during peak times, customers are encouraged to munch on peanuts and throw the shells on the floor. To reach a table that opens up, one must crunch across the floor atop these shells. While waiting for one's order, there are more peanuts to snack on at the table. Children especially delight in littering the floor in a way they could never do at home.

Different from other steak houses, the Grill offers baked sweetpotatoes as one of its side dish choices for dinners, along with potatoes. My sweetpotato came seasoned with brown sugar and cinnamon. There was also sweetpotato pie offered for dessert.

Buffets, Incorporated, also offers sweetpotato in some of its chain restaurants. Buffets offers candied yams (a sweetpotato dish) on the Sunday menu of two of its buffet-style chains, Country Buffet and Home Town Buffet.



The Original Roadhouse Grill, Portland, Oregon. The author's brother, Gary, holding vegetable and beef shish kebabs on pilaf (front), and a baked sweetpotato with light-yellow flesh (back). August 1998.

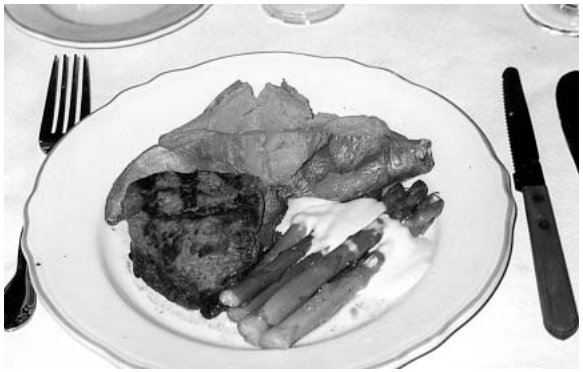
There are also more independent restaurants regularly offering sweetpotato. Hays, Kansas, a college town with about 20,000 residents, has a restaurant offering baked sweetpotato as a side dish choice with steak dinners. Available only on weekends, sweetpotato is flavored with brown sugar and butter. Offered since about 1995, about half of customers choose sweetpotato over potato. Other Hays restaurants have begun similar offerings.

References:

Macintosh, Elaine, ***American Food Habits in a Historical Perspective***, Praeger Publishers, Westport, Connecticut, USA, 1995, USA, p. 82.

Thomas, Gertrude I., ***Foods of Our Forefathers***, F.A. Davis Co., Philadelphia, Pennsylvania, USA, 1941, p. 50.

A fast-food restaurant with sweetpotato fries on its menu. BurgerVille USA, Vancouver, Washington. January 1999.



Baked sweetpotatoes with orange flesh (back) served with beef steak (left) and asparagus (right) at Best Western, Hotel Acadiana (Lafayette, Louisiana). Sweetpotato Council of the USA, Inc., banquet. January 1999.

Sweetpotato Festivals

There are a variety of agricultural festivals held in the USA ranging from large to small. A common pattern is for an agricultural area's main crop to serve as the festival theme with the area's other crops also sharing some of the limelight.

Though sweetpotato is a minor USA crop, there are nonetheless a number of sweetpotato festivals. Introduced below are six that have come to the author's attention. Each is held in a small town where agriculture is important, and sweetpotatoes are (or used to be) an important crop. The festivals are meant to draw tourists, as well as demonstrate community pride. Though the festival programs vary, many feature sweetpotato in exhibitions, cooking competitions, Miss Sweetpotato Contests, direct sales of the tuber or products made from it, and so on.

According to community enthusiasm, a festival may have a long history, die out, be revived, have its date or name or contents changed, and so on. The festivals introduced below are those known to the author who may have unknowingly left out other important ones.

North Carolina Yam Festival. Deborah Hathaway, organizing committee member, wearing a festival T-shirt (January 1999).

California Yamboree Festival. A 1992 scene of a sweetpotato pie booth. Photo courtesy of Velma Duell McConnell and the Livingston Chamber of Commerce.

USA Sweetpotato Festivals

Festival Name [1]	Place (1990 population)	Date held	Year started
East Texas Yamboree	Gilmer, Texas (5,000)	mid-October	1935
Georgia Sweetpotato Festival	Ocilla, Georgia (3,000)	end of October	1961
Louisiana Yambilee	Opelousas, Louisiana (18,000)	end of October	1946
National Sweetpotato Festival	Vardaman, Mississippi (1,000)	November	1974
North Carolina Yam Festival	Tabor City, North Carolina (2,000)	end of October	1950s
Yamboree Festival	Livingston, California (7,000)	end of August	1980s

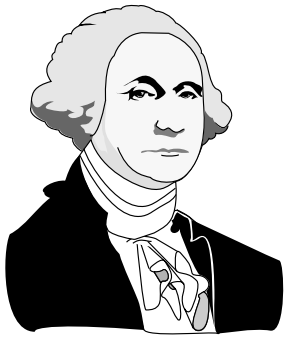
1) Yamboree and Yambilee are plays upon the word "yam" combined with "jamboree," and "jubilee." "Yam" in the USA usually refers to sweetpotato varieties having a deep-orange flesh.

Louisiana Yambilee. The 1978 Yambilee Queen Renee Bryant with the successful bidder of the auction for the first place winner of the fresh sweetpotato competition. Photo courtesy of L.J. Duplechain, former Executive Director, Louisiana Sweetpotato Commission.

East Texas Yamboree. The 1996 Yamboree Queen Leslie Erin Glaze (center) is surrounded by her court. Photo courtesy of Velera Jones and the Gilmer Chamber of Commerce.

Reference:
Vardaman Sweetpotato Festival Committee (Mississippi), ***The Sweetpotato Cookbook, Enjoy Nutritious Sweetpotatoes with Vardaman Sweetpotato Recipe Collection***, Morris Press, Kearney, Nebraska, USA, 1996.

President George Washington



Efforts have been made to preserve President George Washington's home, Mount Vernon (Virginia), as it was when the first US president lived there two centuries ago. In the kitchen garden are grown the vegetables cultivated then, which include sweetpotatoes.

The cookbook of Mrs. Martha Washington remains, which contains recipes handed down from her ancestors. This custom of upper class English homes was brought by their immigrant members to North America. A daughter would copy down recipes and household hints from her mother's own handwritten cookbook. Also included might be recipes from friends, relatives, servants, and so on. A young woman would bring along the book as part of her trousseau upon marriage. The cookbook of Martha Washington seems to have been written by the mother of her first husband, and therefore dating from the last half of the 17th century. The contents relate mostly to English cooking.

In Martha's cookbook appears a recipe for a meat pie with potatoes. At the time, "potato" still referred to both potatoes and sweetpotatoes, but ingredients such as orange, grapes, and other fruits, indicate that this potato is most likely sweetpotato. Unfortunately, it is not evident how the Washingtons favored consuming sweetpotatoes, or how often.

Reference:
Hess, Karen, transcriber and annotator, ***Martha Washington's Booke of Cookery***, Columbia University Press, New York, 1981, pp. 84-87, 447-463, 475-476.

George Washington Carver and Tuskegee University

George Washington Carver was an agricultural chemist who researched the potential of sweetpotatoes and peanuts more than 40 years at what is today Tuskegee University in Alabama. He was born as a slave about 1860. Freed after the end of the Civil War, Carver worked his way through school attaining a master's degree before being named director of agricultural research at Tuskegee Normal and Industrial Institute in 1896.

The Institute was founded in 1881 to train African-Americans how to be economically independent through learning manual and agricultural skills. The first principal was Booker T. Washington. The Institute gradually evolved into what is today Tuskegee University. Open to all applicants today, the student body continues to be primarily African-American.

In the late 1800s, discrimination against African-Americans was an impediment for their developing their potential. Principal Washington believed African-Americans could better improve their situation through education rather than political confrontation against the white majority. Carver was in agreement with this principle since it allowed African-Americans to improve their economic situation in society.

During Carver's time, agriculture was still a prevalent occupation. There were many poor African-American farmers in the Tuskegee area. Until his death in 1943, Carver not only taught students, but also set up an extension program to help area farmers improve their farming techniques, and to encourage them to grow peanuts, sweetpotatoes, and other crops for improving the soil, balancing their diet, and providing them with cash crops.

Carver promoted the growing of peanuts not only because they were nutritious, but also because they returned nitrogen to the fields. At the time, cotton,

which was extensively grown in the South, had exhausted the fields. So Carver brought his scientific knowledge to poor farmers to improve their farming techniques and raise their living standards.

Through Carver's persistence, peanuts became a major crop in the South. By the 1940s, peanuts were second only to cotton in economic importance.

Carver developed a number of products from peanuts and sweetpotatoes. The more than 300 products from peanuts included cheese, peanut milk, soap, plastic, and more. From sweetpotatoes he made flour, vinegar, rubber, ink, and more than 100 other products.

It is difficult today to understand the full value of Carver's research considering the discrimination that was rampant against African-Americans in his day. He was beloved by the white majority since he was not an advocate for political change in the status of African-Americans. He also was active far away from the white majority, preferring to conduct his work in the South among a largely African-American population. Whites considered him to be a model African-American.

Carver seems to have been looked at askance by those African-Americans who were strongly advocating "African-American"-white equality through political action. In any case, after his 1943 death, the US Congress declared January 5, 1946 to be "Dr. George Washington Carver Day." Unfortunately, there seem to be few today who remember this day. However, the South Carolina legislature in April 1998, following the lead of ten other states, revived the concept by declaring January 5 to be "Dr. George Washington Carver Day" in that state.

Prof. George Washington Carver, Tuskegee University, Alabama, renowned agricultural chemist who researched the potential of sweetpotatoes and peanuts. 1930s photo used with permission from: National Park Service - George Washington Carver National Monument.

Also, the site of Carver's birth in Missouri was declared a national monument the year he died. Likewise, there is the George Washington Carver Museum at Tuskegee University, set up in 1938 to honor the famous man who taught and researched there. The Museum became a national historic site in 1977, and currently has displays concerning Carver's life and research, as well as introducing Tuskegee's history.

Peanut and sweetpotato research continues at Tuskegee University. The National Aeronautics and Space Administration (NASA) has designated Tuskegee as the site for researching how best to grow and utilize these two crops in outer space. Subsequently, in 1991 an international symposium "Sweetpotato Technology for the 21st Century" was held at Tuskegee.

NASA's goals for space agriculture concern reducing the amount of cargo required to take into space. By astronauts growing some of their own food, these crops would help convert astronauts' exhaled carbon dioxide into oxygen, help recycle waste water, and so on. Advantages of including sweetpotatoes as a crop for space include its being able to withstand environmental stress, having few parts that are inedible, ability to produce a large number of calories in a short time in a small space, and so on.

On the fourth Thursday of November, Thanksgiving Day, in the USA, many families consume sweetpotatoes along with turkey and other foods of that day. In 1997 there happened to be a NASA Space Shuttle flight in progress on that holiday. Though astronauts had taken along Thanksgiving food, one regretted that there were no sweetpotatoes included. How long will it be before astronauts can enjoy sweetpotatoes on their menu?

Finally, a National Sweetpotato Information Center has been established at Tuskegee University.

References:

Carver, George Washington, ***How the Farmer Can Save His Sweetpotatoes***, Bulletin No. 38, November 1936, Tuskegee Institute Press,Tuskegee, Alabama, USA, 4th edition, 1937.

Hill, Walter A., Conrad K. Bonsi, Philip A. Loretan, editors, ***Sweetpotato Technology for the 21st Century***, Tuskegee University, Tuskegee, Alabama, USA, 1992.

Holt, Rackham, ***George Washington Carver, an American Biography***, Doubleday, Doran and Co., Inc., Garden City, N.Y., USA, 1943.