

Research Investigation Report

Roasted Sweet Potatoes in China: A Brief Survey

Barry Duell

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I. Introduction

Roasted sweet potatoes are one of the popular ways of consuming sweet potatoes in Japan, both currently and historically, especially during colder months.¹⁾ The First International Roasted Sweet Potato Forum was held in Japan November 26-27, 2011, for looking holistically at roasted sweet potatoes, exploring not only their consumption in Japan and abroad, but also hoping to popularize in Japan and abroad the best of the related technology.²⁾ The author, planning chairman of the event, reports below on roasted sweet potatoes as observed in China where they are also a popular snack food throughout the country.³⁾ This paper is based on a PowerPoint presentation given at the Forum's second planning meeting held October 2, 2010, but not presented at the Forum.⁴⁾

Though the center of origin of sweet potatoes is the tropical Americas, China is the world's largest producer of that crop.⁵⁾ From 2007 to 2009, China's harvest averaged about 77,000 Kt of sweet potatoes, roughly 75% of world production. Japan's share during the same period was only about one percent, with an average world ranking of ninth. The share of the author's country of origin, the United States, was less than 0.9 percent, with a ranking averaging 14th. The other countries among the average top 15 for all three years were in sub-Saharan Africa and South Asia (Indonesia, Vietnam, and India).⁶⁾

each had different equipment from the others, apparently tailor-made for their needs. There were also variations in fuel used, and types of sweet potatoes baked. No vendors wore any special clothing, such as work clothes or an apron, that might identify them as a roasted sweet potato vendor.

II. Roasted Sweet Potato Vendor at Shíjiāzhuāng North Station, Shíjiāzhuāng City, Héběi Province

On September 23, 2009, at 11:15 AM, a roasted sweet potato vendor was observed soon after the author exited Shíjiāzhuāng North Station (a stop on the high-speed Bullet D train line from Beijing) in Shíjiāzhuāng City, Héběi Province. The vendor's equipment was set up on the back of a tricycle, for ease of moving to promising locations (**Fig. 2**).

Our group's members were the vendor's only customers as we bought from him, and talked with him. He had just begun moving away from the station to look for a more promising area. The vendor indicated he works from about 5 AM till 8 or 9 PM, realizing about 100 yuán (about 1,200 JPY/15.75 USD) income per day.¹²⁾

The variety of sweet potato the vendor was baking had a pinkish skin, with light orange meat. He was using coke for fuel. His baker was made from a clay-like material designed to hold in the heat. His product was baked nicely having a soft, moist flesh with a somewhat sweet taste. The vendor



Fig. 2 A roasted sweet potato vendor near Shíjiāzhuāng North Station, Shíjiāzhuāng City, Héběi Province (September 23, 2009, 11:15 AM).¹³⁾

charged 6 yuán/kg (about 73 JPY/0.95 USD), a higher price than locals pay (**Fig. 3**). We did not try to bring down the price by haggling like the locals do, feeling the extra was worth the privilege of taking photos and asking questions.

Sweet potatoes are baked by placing them on wire racks in the baker (**Fig. 4**).

III. Roasted Sweet Potato Vendors at Two Major Chinese UNESCO World Heritage Sites

Only one roasted sweet potato vendor was observed at each of two UNESCO World Heritage sites visited, though there were many vendors of other foods and souvenirs at both. Another Chinese World Heritage site, the Great Wall, was also visited, on September 17, 2010, but no roasted sweet potato vendors were seen.

1. Píngyáo, Shānxī Province

During a September 12, 2010 visit to Píngyáo, a well-preserved traditional Han Chinese city founded in the 14th century, in Shānxī Province, a single roasted sweet potato vendor was observed around 1:30 PM. He had no customers though Píngyáo had many visitors that day (**Fig. 5**).



Fig. 3 Shigeki Gohara, Chairman of Festivalo, a sweet potato confection company in Kagoshima Prefecture that sponsored our 2009 China visit, inspecting a freshly baked sweet potato with pinkish skin, and light orange flesh just purchased near Shíjiǎzhuāng North Station (September 23, 2009, 11:15 AM).

Two varieties of sweet potatoes were available, one with light reddish skin, and another with tan skin. The baking fuel was similar to Japanese "rentan" or coal dust briquettes. The baker had steel casing with sweet potatoes piled up inside for baking (**Fig. 6**).

The cost of one small roasted sweet potato was 3 yuán (about 36 JPY/0.47 USD), much higher than what a local customer would be charged. The tan-skinned sweet potato's light-yellow meat was poor quality (somewhat crunchy and not so tasty) (**Fig. 7**).

2. Qūfù City, Shāndōng Province

Qūfù City is the birthplace of Confucius which has many historic sites related to him. Though there were many visitors at these sites on September 27, 2009, and many shops and stalls for supplying them with souvenirs and food, only one roasted sweet potato vendor was spotted around 1 PM. She had no customers. Her mobile stall, and another in the background, can be seen set up in the street in front of a police station (**Fig. 8**). It was not clear if this implied that street sales were permitted and these vendors had an appropriate license, whether street sales may be controlled by racketeers as in Japan, or what.¹⁴ Non-mobile stalls also catering to tourists were set up off the street on the curb (**Fig. 9**).



Fig. 4 Looking inside the baker with its lid off. Note sweet potatoes placed on wire racks inside for baking. Baked sweet potatoes being kept hot on top of the baker are ready for selling (September 23, 2009, 11:20 AM).

The vendor's baker was multi-storied with the lower door for inserting fuel (coke) and removing ash. Upper sections were for baking sweet potatoes, with the topmost used for keeping finished sweet potatoes hot (**Fig. 9**).

The price charged for one roasted sweet potato was 5 yuán (about 61 JPY/0.79 USD), the highest among all the roasted sweet potato vendors visited by the author in China. The variety used had tan skin, yellow meat, and was slightly moist and sweet.

IV. Roasted Sweet Potato Vendors in Shānxī University, Tàiyuán City, Shānxī Province

1. Introduction to Shānxī University Campus

Shānxī University is in Tàiyuán City, Shānxī Province, and is one of Tokyo International University's (TIU) sister universities. The author participated in the summer exchange program to China held September 6-17, 2010. We were on campus September 7-15. The university campus resembles a semi-independent town, though it is within the provincial capital, Tàiyuán City. The campus is roughly 1.5 km north-south by 1 km east-west. There are roughly 12,000 students. In addition to



Fig. 5 A roasted sweet potato vendor at Píngyáo, Shānxī Province, with no customers (September 12, 2010, 1:30 PM).¹⁵⁾

the student dormitories, housing is also provided for faculty, staff, and their families, bringing the campus population up to about 40,000. The campus includes facilities such as a hospital, elementary school, post office, bank, parks, and a shopping area. It is in the latter area where two roasted sweet potato vendors were observed. Neither were mobile, unlike the other roasted sweet potato vendors described above.

A roasted sweet potato vendor was also glimpsed in downtown Tàiyuán City, but there unfortunately was not an opportunity to stop for investigation.

2. Shopping Road Entrance Vendor

At the entrance of the campus' gated shopping road, a roasted sweet potato vendor was observed (Fig. 10). Unlike the other roasted sweet potato vendors introduced in this paper, the author was able to visit this vendor on several different days in the afternoon or evening. This was enabled by being on campus for the TIU - Shānxī University exchange study program, and having our dormitory and classrooms relatively nearby.

The author was charged 3 yuán (about 36 JPY/0.47 USD) for a roasted sweet potato each time



Fig. 6 The baker's lid has been put aside to show sweet potatoes piled up inside for baking. Finished sweet potatoes are set along the right rim to attract customers, and at the same time to keep them hot. Uncooked potatoes are to the left (September 12, 2010, 1:30 PM).¹⁶⁾

the vendor was visited, which Chinese students said was more than they would pay. Mainly two varieties were sold, a tannish-colored one with somewhat sweet, slightly moist light-yellow flesh, and a reddish-colored one with sweet moist orange flesh. The tannish variety bought near 6 PM one day was drier and less pleasing than the same variety bought near 2 PM another day. This may possibly be accounted for by a difference in length of roasting times, or by how long the potato was kept in the warmer, where it would tend to gradually dry out after roasting, before finally being sold.

The vendor uses various equipment for his work as observed when he was on break (**Fig. 11**).

The vendor uses gloves for putting fresh sweet potatoes into the baker or removing finished ones (**Fig. 12**). The potatoes sit on a wire rack inside the baker for roasting (**Fig. 13**).

Unlike any other roasted sweet potato vendors observed, this vendor uses specially printed paper bags for holding his product (**Fig. 14**).

3. Shop with Both Roasted and Steamed Sweet Potatoes

A shop was observed in a small shopping area sandwiched between Shānxī University's dormitories and classroom buildings that was selling not only roasted sweet potatoes, but also steamed sweet



Fig. 7 The now happy vendor with two Tokyo International University students, part of the group in China for exchange with Shānxī University, one holding a roasted tan-skinned sweet potato with light-yellow meat, and the other holding the vendor's scale (September 12, 2010, 1:30 PM).

potatoes and steamed ears of corn (**Fig. 15**). A young couple manages the shop (**Fig. 16**). The baker, fashioned from a steel oil drum, uses Japanese-style "rentan" or coal-dust briquettes as fuel, and has a wire rack inside on which sweet potatoes are baked (**Fig. 17**).

The couple was roasting tan-skinned sweet potatoes with yellow flesh, and steaming a reddish-skinned variety also with yellow flesh. Their sweet potatoes come from Hóngdòng County, also in Shānxī Province, about 180 km to the south.¹⁷⁾

V. Conclusion

Only a few roasted sweet potato vendors were observed in China in September of 2010 and 2011 because the weather was still too warm. Yet to be observed is the roasted sweet potato season when it is in full swing during the colder winter months with many more vendors out at many more locations.

However, a little information was gleaned, as recorded above, concerning locations where roasted sweet potatoes were sold, the type of equipment and fuel used, types of sweet potato baked, and selling prices. However, many points remain yet to be investigated:



Fig. 8 A roasted sweet potato vender in Qūfù City, Shāndōng Province, along a road used by tourists walking between historic sites related to Confucius (September 27, 2009, 1:00 PM).¹⁸⁾

Are there differences in gender or age or urban/rural or regional preferences for roasted sweet potatoes?

How does the roasted sweet potato season vary between regions in China? Are there areas without roasted sweet potato?

What sweet potato varieties are vendors using in different areas of China? What are the reasons for the variations?

From where do vendors procure their sweet potatoes: directly from the farm, through a wholesale market, through a dealer who perhaps may also offer other supplies or services such as bakers, fuel, or guaranteed selling territory?



Fig. 9 The vendor at her baker (September 27, 2009, 12:55 PM).¹⁹⁾

How are sweet potatoes stored after harvest to best develop the qualities favored in roasted sweet potatoes?

What are the wholesale costs of sweet potatoes for a vendor? What do the roasted sweet potatoes then sell for? What range of income can a vendor expect?

How do prices vary with region or variety baked?

Are consumption patterns changing: how stable is the roasted sweet potato market, or to what degree are roasted sweet potatoes being replaced by different snack foods?

What locations do vendors favor: tourist areas, residential areas, near offices or schools or train stations, and so on?



Fig. 10 The gated entrance of a busy, narrow shopping road within the Shānxī University campus. To the left is a greengrocer, and along the wall to the right is a roasted sweet potato vendor standing next to his baker dealing with a customer (September 8, 2010, 2 PM).²⁰⁾

Are there new trends in marketing such as creation of roasted sweet potato chain companies, or improvements in baking equipment yielding more efficient fuel use or fewer carbon dioxide/monoxide or particulate emissions, or development of new baking styles or selling practices such as selling in supermarkets, and so on?²¹⁾

Do racketeers, like the “tekiya” in Japan, control street vendors in China as they do in Japan? If so, how?²²⁾



Fig. 11 The vendor's various equipment was observed when he was away on break (September 13, 2010, 3 PM).²³⁾

What sort of people become sweet potato vendors? What proportion are women? How do they get training for properly using the equipment? How do they procure their necessary equipment and at what cost? How do they support themselves during the off-season? Where do vendors store their equipment then?

Notes

- 1) Hiroshi Inoue, “Edo/Tokyo no yakiimoya no utsurikawari” (Changing Situation of Roasted Sweet Potato Vendors in Edo/Tokyo), *Yakiimo shohyokka* (A Holistic Look at Roasted Sweet Potatoes), Roasted Sweet



Fig. 12 The vendor, with gloves on, seen removing fresh-baked sweet potatoes from the baker (September 8, 2010, 1: 50 PM).²⁴⁾

- Potato Culture Team (eds.), Kawagoe, Saitama, Kawagoe imo tomo no kai (Kawagoe Friends of Sweet Potatoes), 2005, pp. 4-13. Retrieved November 16, 2011 from http://www.jrt.gr.jp/yaki_imo/4-13.pdf
- 2) Eiji Yamada, "Kokusai yakiimo koryu foramu no junbi jokyo ni tsuite" (Progress in Planning the International Roasted Sweetpotato Forum), Japanese Society for Root and Tuber Crops Newsletter, September 2011, No. 79, pp. 3-5. Retrieved November 16, 2011 from <http://www.jrt.gr.jp/news/news79.pdf>
 - 3) T. Srinivas, "Economics of Sweetpotato Production and Marketing," *The Sweet Potato*, Gad Loebenstein, George Thottappilly, (Eds.), Dordrecht, Netherlands, Springer Science+Business Media B.V., 2009, p. 242.
 - 4) The author presented a Japanese PowerPoint presentation, "Chugoku no yakiimo jijo nitsuite" (Roasted Sweet Potatoes in China), at the October 2, 2010 second planning meeting preparing for the First International Roasted Sweet Potato Forum that was held November 26-27, 2011 at Joshi Eiyo Daigaku (Kagawa Nutrition University) in Sakado City, Saitama Prefecture. Retrieved November 18, 2011 from http://www.jrt.gr.jp/yaki_imoF/china.pdf
 - 5) Gad Loebenstein, "Origin, Distribution and Economic Importance," *The Sweet Potato*, *op.cit.*, pp. 9-12.
 - 6) FAOSTAT (2009 is the latest year for which production statistics are available at this time). Retrieved November 6, 2011 from <http://faostat.fao.org/site/567/DesktopDefault.aspx?PageID=567#ancor>
 - 7) Hiroshi Inoue, "Chugoku no daitoshi no yakiimoya" (Roasted Sweet Potato Vendors in Large Chinese Cities), *Yakiimo shohyakka* (A Holistic Look at Roasted Sweet Potatoes), *op.cit.*, pp. 60-65. Retrieved November 16, 2011 from http://www.jrt.gr.jp/yaki_imo/60-65.pdf
 - 8) L. Zhang et al, "Sweetpotato in China," *The Sweet Potato*, *op.cit.*, pp. 329-330.



Fig. 13 Tan-skinned sweet potatoes roasting on a wire rack inside the baker (September 8, 2010, 1:50 PM).

- 9) FAOSTAT, *op. cit.*
- 10) Personal communication from the vendor, September 14, 2010.
- 11) **Fig. 1** caption continued: Locations enclosed in an ellipse are where roasted sweet potato vendors were observed. No roasted sweet potato vendors were observed in places enclosed by a square. The location enclosed by a triangle, Hóngdòng County, Shānxī Province, is the source of at least one Shānxī University (Tàiyuán City, Shānxī Province) vendor's sweet potatoes.
- 12) All currency exchange values reflect the rates of November 16, 2011. Retrieved November 16, 2011 from



Fig. 14 The author's daughter holding a "light red"-skinned sweet potato with sweet, moist orange flesh, and the vendor's specially printed paper bag for holding the product. Printed on the bag are the vendor's shop and product names, publicity about how healthy his product is for customers, and contact information (September 8, 2010, 1:50 PM).

<http://www.xe.com/ucc/>

- 13) **Fig. 2** caption continued: Note his equipment set up on the back of a tricycle. Visible are his sweet potato baker (wrapped in corrugated fiberboard for insulation), roasted sweet potatoes on top of the baker being kept hot and ready for customers, a scale for weighing these (the price is determined by weight), a sack of fresh sweet potatoes yet to be baked, plastic bags for customers to carry their purchase in, and a water bottle attached to the tricycle's frame. On his right arm, the vendor is wearing an arm covering to protect his skin from the heat when reaching down into the baker.
- 14) David E. Kaplan, Alec Dubro, *Yakuza: Japan's Criminal Underworld*, Berkeley and Los Angeles, California, University of California Press, 2003, pp. 10-11.
- 15) **Fig. 5** caption continued: His equipment includes the baker on the back of a tricycle, a pile of unbaked sweet potatoes, an umbrella to shade him from the sun, bagged supplies suspended from his handle bars and in his tricycle's basket, and a tea thermos on the ground.
- 16) **Fig. 6** caption continued: The pair of tongs behind the lid is used for retrieving hot, roasted sweet potatoes. Two varieties of sweet potatoes were observed, a light reddish skinned one, and a tan skinned one (the large roundish sweet potato, as well as the one on the scale).
- 17) Personal communication from the vendor, September 14, 2010.
- 18) **Fig. 8** caption continued: The vendor's baker is on the back of her tricycle. Tools of her trade, a scale and a poker are at the rear of the tricycle's flatbed. Unroasted sweet potatoes are in front of her baker. Plastic



Fig. 15 A small shopping area in the Shānxī University campus with a shop selling (from bottom left to center) steamed sweet potatoes, steamed ears of corn, and roasted sweet potatoes (September 14, 2010, 5:15 PM).²⁵⁾

bags used for purchases hang from the rear of the flatbed. Other supplies are in the tricycle's basket. A chair for her to rest on is beside the pedals. Behind her is another vendor who is selling fruit.

- 19) **Fig. 9** caption continued: The baker's four doors are used for inserting fuel, coke, and removing ash (bottom door), for inserting sweet potatoes for baking (middle doors), and for retrieving roasted sweet potatoes from a wire rack where they are being kept hot for customers (the top door which is open in the photo). Other types of vendors and shops are in the background.
- 20) **Fig. 10** caption continued: The customer is waiting to hand payment to the vendor, with the vendor still putting the purchase in a paper bag. The vendor's canteen hangs from the wall, and a bag of fresh sweet



Fig. 16 The young couple that manages the shop standing behind their roasted sweet potato baker, fashioned from a steel oil drum, which has the finished product, a tan-skinned sweet potato with yellow flesh, being kept hot on top (September 14, 2010, 5:10 PM).

potatoes sits at the foot of the baker.

21) The non-profit organization Aprovecho Research Center (Cottage Grove, Oregon, USA) is working to reduce deforestation, climate change, and indoor air pollution worldwide by designing efficient stoves for cooking and heating, and disseminating these, especially in the developing world. The author has not yet verified if stoves have been created suitable for the needs of roasted sweet potato vendors. Website verified November 17, 2011: <http://aprovecho.org/lab/>

22) David E. Kaplan, *op. cit.*

23) **Fig. 11** caption continued: The steel-plate baker itself is divided into two sections. The section with a hole



Fig. 17 The baker with its lid removed revealing the wire rack inside on which sweet potatoes are arranged for baking. The burning fuel can be seen at the bottom of the baker (September 14, 2010, 5:10 PM).

in the lid is the baking oven. The overhang in front of this, with the square lid and handle, is the warming oven to keep baked sweet potatoes hot for customers. Stacked up at the baker's base are Japanese-style "rentan," or coal dust briquettes, just next to the hole for inserting fuel (using the tongs or poker leaning against the wall) or removing ash (with the shovel leaning against the wall). Not shown are the gloves the vendor uses to protect his hands from heat.

- 24) **Fig. 12** caption continued: Note the thin plywood sheets wired to the baker's sides. These may be as much for protecting the vendor and passersby from burns as for helping insulate the baker. Fig. 11 shows that the overhanging warming oven is not similarly covered. The vendor's canteen can be seen suspended from the wall.
- 25) **Fig. 15** caption continued: Beyond these is a table with a scale, and a bag of uncooked sweet potatoes on the ground. The cooking fuel is Japanese-style "rentan" or coal-dust briquettes. The steamed sweet potatoes sell for 2.5 yuán/kg (about 30 JPY / 0.39 USD), and the roasted ones sell for 3.5 yuán/kg (about 42 JPY / 0.55 USD).

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