Abstract:

The sweet potato, though nutritious and healthful, has languished as measured by per capita consumption. Value-adding products have been developed, but have not been successful in expanding consumption and acceptance. Specialty pack exports to the United Kingdom, with expansion to continental Europe, are a potential market for appropriately packaged product.

Key words:

Sweet potato, value added, specialty pack, exports
The sweet potato has been an important crop for farmers in states mostly along the Gulf Coast, and California. It is one of the most nutritious and healthiest vegetable crops. Media attention over the years has been positive, in terms of nutrition and other health-enhancing attributes. However, it traditionally has been associated with seasonal and holiday consumption, particularly during Thanksgiving and Christmas. The sweet potato has not entirely overcome this association to become a major diet item across the year. Per capita consumption numbers confirm this, having declined from about 5.4 pounds per person in 1970 to a fairly steady value of about 4.2 pounds since 2000 (Table 1).

<table>
<thead>
<tr>
<th>Year</th>
<th>Production</th>
<th>Imports</th>
<th>Exports</th>
<th>Feed etc</th>
<th>Domestic</th>
<th>Use per capita</th>
<th>Average price, 1996 dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>1316</td>
<td>0</td>
<td>0</td>
<td>206</td>
<td>1110</td>
<td>5.4</td>
<td>14.95</td>
</tr>
<tr>
<td>1980</td>
<td>1095</td>
<td>3</td>
<td>17</td>
<td>82</td>
<td>999</td>
<td>4.4</td>
<td>23.70</td>
</tr>
<tr>
<td>1990</td>
<td>1259</td>
<td>19</td>
<td>15</td>
<td>163</td>
<td>1100</td>
<td>4.4</td>
<td>11.21</td>
</tr>
<tr>
<td>2000</td>
<td>1379</td>
<td>15</td>
<td>39</td>
<td>173</td>
<td>1182</td>
<td>4.2</td>
<td>14.29</td>
</tr>
<tr>
<td>2003</td>
<td>1435</td>
<td>15</td>
<td>52</td>
<td>173</td>
<td>1225</td>
<td>4.2</td>
<td>na</td>
</tr>
</tbody>
</table>

Production – NASS/USDA; Imports – US Department of Commerce

There have been continuing attempts to expand sweet potato consumption through production of value added products. Value added agriculture increases the economic value and consumer appeal of an agricultural commodity. As an alternative production and marketing strategy, a better understanding of the food industry, food safety issues, and consumer preferences, is required (http://www.mda.state.mn.us/mgo/farming/Value-Added.htm). Value-
added also is thought of as the incremental value realized from an agricultural commodity from change in physical state, differentiated production or marketing, or identity preserved product. Farmers receive only what the market pays for a raw commodity, but they may be able to reap far greater rewards through value-adding activities – money that would otherwise go to ‘middlemen’.

Value-added processing is not a new idea to the sweet potato industry. A significant portion of production is not appropriate for the fresh market, due to harvest or handling damage, or roots of too big or too small size to meet U.S. grade standard requirements to be sold as fresh product. Farmers typically sell these roots to canners at low prices. The canned sweet potato is an important market item, but consumption in this form has not expanded in the last several decades. Frozen products have been developed, but have not broken from the perceptions to become a broadly used product form. Another value adding effort has been the sweet potato chip. While chips have achieved some measure of acceptance, they are not popular enough to be given wide distribution. Because of these factors, production has remained about the same over the years (Table 2).

Table 2. Sweet potatoes: Production by state, selected years.

<table>
<thead>
<tr>
<th>Year</th>
<th>California</th>
<th>Louisiana</th>
<th>Mississippi</th>
<th>North Carolina</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>1512</td>
<td>2125</td>
<td>414</td>
<td>4255</td>
</tr>
<tr>
<td>1990</td>
<td>1453</td>
<td>3360</td>
<td>420</td>
<td>4930</td>
</tr>
<tr>
<td>2000</td>
<td>2625</td>
<td>3120</td>
<td>1476</td>
<td>5550</td>
</tr>
<tr>
<td>2004</td>
<td>3220</td>
<td>2325</td>
<td>2601</td>
<td>6880</td>
</tr>
</tbody>
</table>

Source: National Agricultural Statistics Service/USDA

Despite these shortfalls in the market, farmers usually find fresh market sales to be attractively priced, production is profitable, and efforts to find value-adding activities or products continue. Only in recent years has the export market been seriously considered by U.S. sweet
potato growers (with the exception of Canada). Sweet potato was considered a bulky product, expensive to ship relative to product value. Maintaining proper postharvest temperature and humidity during transport and distribution to market was often difficult. In addition, appropriate packaging materials were often not used, resulting in significant postharvest losses and reduced product arrival quality.

The vast majority of sweetpotatoes produced in Louisiana is marketed within the continental U.S. However, a small but growing quantity of sweet potato is exported as an alternative value-adding activity. A market development which has occurred within the past several years has been the significant increase in fresh sweetpotato import volume by the United Kingdom (U.K.). Total import volume nearly tripled from 8.5 million lb in 1997 to slightly over 25 million lb in 2002. Exports of U.S. sweetpotatoes to the U.K. increased from 3.1 million lb in 1997 to 13.1 million lb in 2002. This constituted slightly over half of total U.K. import volume for 2002, and was a significant portion of total U.S. exports (Table 2). This is the fastest growing market destination for U.S. sweetpotatoes. Product from North Carolina, Louisiana, California, and Mississippi is currently being exported to the U.K. to produce importers, who then distribute the product to the retail and wholesale markets. Importers forecast this market growth trend to continue into the future. Trade sources indicate the growth potential is significant, as sweet potatoes are one of the fastest increasing produce commodities among retail sector consumers. Grower/shippers have an excellent opportunity to benefit from this market opportunity and increase their export volume.

Data on consumption and use of niche market items like this are difficult to locate. The U.K. public sector trade authorities do not monitor per capita consumption of sweet potatoes. Furthermore, continental E.U. Customs authorities do not differentiate between country-of-origin
and trans-shipped products. Therefore, reliance on EUROSAT and other trade-monitoring bodies for sweet potato import data is very misleading. Due to large amounts of trans-shipments through Marseilles, France and Rotterdam, Netherlands, both France and the Netherlands are reported to be major sources of sweet potatoes for the E.U. In reality, neither country produces sweet potatoes. Personal communications with the leading British retail supermarket chains indicated the sweet potato led all other fresh vegetables in market growth percentage during 2004. In all the U.K. stores of the top six British retail supermarket chains, which represents slightly more than a 75% market share of the entire British retail food market sector, orange flesh sweet potatoes are now stocked year around. This is a dramatic contrast from only three years ago, in which few retail stores routinely stocked orange flesh sweet potatoes. Demand is year around, but consumption is higher during the cooler winter months. Sweet potatoes are widely consumed during the major winter holidays and the festivals celebrated by the ethnic communities. The catering market segment, which includes restaurants, institutions, and food-service establishments, is also experiencing market growth in its value-added sweet potato products. Orange flesh sweet potatoes are also the preferred type in this market segment.

Much of this recent consumer interest in sweet potatoes can be attributed to its pleasing taste and high nutritional value, which an increasing number of British consumers are discovering. This consumer has become very discerning and requires high quality sweet potatoes. Factors which have contributed to the increased consumption of exotic fresh produce items, like sweet potatoes, are the desire for a healthy nutritious diet, greater affluence, and a willingness by consumers to try new products. This has led to a new class of consumer with more sophisticated tastes and requirements.
Our research efforts in the LSU AgCenter are focusing on postharvest care and packaging technologies to improve arrival quality and shelf life of Louisiana sweet potatoes. Appropriate product handling techniques and packaging specific to the British market must be used in order to increase market penetration. Fresh sweet potatoes are susceptible to weight loss, deterioration, and decay during all stages of transport and market distribution. These undesirable root quality changes must be kept to a minimum to avoid a discounted market price or load rejection upon arrival in the U.K. British retailers typically impose tight quality control specifications for sweet potatoes. Damage from all sources (i.e. bruising, skinning, insect damage, disease, etc.) must not exceed a 2% gross defect tolerance level. Export quality roots should be carefully selected to include only firm, well-shaped sweet potatoes with a bright, clean skin. Strict control over sizing during grading is needed to improve root uniformity within a carton, which is an important criterion of the British importers. All the British retail supermarkets obtain their sweet potatoes through an importer, rather than purchasing directly from the grower/exporter. However, individual supermarket chains dictate their grade standards and quality requirements which the importer must adhere to. In addition, sweet potato suppliers must be EUREPGAP certified to sell to any of the principal British retailers. This is an industry-based scheme of good agricultural practices and compliance criteria in the areas of food safety, product traceability, environmental protection, and occupational health, safety, and welfare. Grower/shippers receive their EUREPGAP approval through independent verification from a verification body approved by EUREPGAP.

Several distinct differences exist between American and British retailers in market presentation and packaging materials used for sweet potatoes. American retailers typically present fresh sweet potatoes to the consumer in the form of bulk displays, while British retailers
offer both bulk (Figure 1) and pre-bagged displays of sweet potatoes (Figure 2). The size of the individual roots in the bulk display typically ranges between 350 to 450 gm (12 to 16 ounces) and is larger than the roots in the consumer bags. Retailers offer store labeled pre-bagged roots in 500-gm, 750-gm, or 1-kg size perforated polyethylene bags. Individual root size within the consumer bag generally ranges between 150 to 200 gm (5 to 7 ounces) and is equivalent to a U.S. #2 (canner) size root. This is significant because it gives the Louisiana grower/shipper the opportunity to sell canner-sized roots (U.S. #2 grade) to the British fresh market at substantially higher prices compared to the domestic processing market.

Another principal difference between American and British markets is in the shipping carton. The standard carton used in the American market is 40-lb, while the U.K. importers strongly prefer a 6-kg carton (Figure 3). The smaller 6-kg carton has been the standard in Britain for some years and conforms with the retailer’s desire to bulk display sweet potatoes in a shelf-ready carton. This avoids expensive re-packing of sweet potatoes from the larger 40-lb carton into the smaller 6-kg carton and reduces product handling and potential bruise damage. It is in the best interests of the Louisiana exporter to comply with the importer’s desire to receive the product in the preferred shipping carton for their market, rather than assume the larger American style carton is satisfactory. Since other countries also export sweetpotatoes to the U.K. and pack in 6-kg cartons, it is important for Louisiana exporters to be competitive and use the style of shipping carton desired in the destination market. Stronger cartons (preferably 6-kg size) will result in improved root protection during transit and distribution. High impact color graphics on the carton will give the importer a better impression of Louisiana product.

The size categories and concomitant root weight ranges for sweet potatoes with market opportunities in the U.K. are: Small (100-150 gm), Medium (150-300 gm), Large 1 (300-450
gm), Large 2 (450-600 gm), Extra Large (600-800 gm), and Grand (800-950 gm).

Next to the U.S., the principal suppliers of sweet potatoes to the U.K. are Israel, South Africa, and Egypt. Israel is the leading supplier of sweet potatoes to the U.K market after the U.S. Season of production is similar to the southern U.S., but the main export cultivar differs from the U.S. Beauregard. Appearance is good and flavor is also acceptable. The Israeli sweet potato industry is significantly increasing and growers have expanded their curing and storage capacity. Israel will continue to be a formidable competitor to U.S. suppliers for the European sweet potato trade. Production area is also significantly expanding in Egypt, with older orange and white-fleshed types, along with the Beauregard cultivar. Costs of production are low and Egypt has one of the highest yields per hectare of sweet potatoes in the world. The sweet potato industry in many countries is expanding, with the lucrative U.K. market their principal target destination. Minor supplying countries include Brazil, China, Jamaica, Uganda, Peru, New Zealand, and Honduras. The only European production, albeit very limited, is located in Spain, Portugal, and Italy. Sweet potatoes are not grown in the U.K.

Market opportunities and retailer preferences for Louisiana sweet potatoes in continental Europe are also being studied. In addition to Britain, significant growth potential exists for Louisiana sweet potatoes in France, Germany, the Netherlands, Belgium, and Scandinavia. Sweet potato import volume in these market destinations is just beginning to increase. Currently, sales volume for sweet potatoes in the U.K. far exceeds all other countries in Europe. In continental Europe, the sweet potato is allocated only very limited shelf space in a separate exotic section of the retail produce department.

In order to sustain the Louisiana sweet potato industry, it is important to develop new market opportunities for fresh and value-added products. The British and European export
markets are key examples of the exciting possibilities awaiting the grower/shipper who can provide consistent supplies of high quality product tailored for these expanding market destinations.

REFERENCES

Minnesota Department of Agriculture. 2006.

